

SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS <i>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, AND 30</i>				1. REQUISITION NUMBER W59XQG-1288-9786		PAGE 1 OF 113	
2. CONTRACT NO.		3. AWARD/EFFECTIVE DATE		4. ORDER NUMBER		5. SOLICITATION NUMBER DACW45-02-T-0043	
7. FOR SOLICITATION INFORMATION CALL		a. NAME ALEASHA D COTTON				b. TELEPHONE NUMBER (No Collect Calls) (402) 221-3910	
9. ISSUED BY U.S. ARMY CORPS OF ENGINEERS, OMAHA CONTRACTING DIVISION 106 S 15TH STREET FEDERAL BLDG. OMAHA NE 68102-1618 TEL: FAX:		CODE DACW45		10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED <input type="checkbox"/> SET ASIDE: %FOR <input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> SMALL DISADV. BUSINESS <input type="checkbox"/> 8(A) SIC: 3643 SIZE STANDARD: 500		11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input type="checkbox"/> SEE SCHEDULE 13 a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) 13 b. RATING 14. METHOD OF SOLICITATION <input checked="" type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP	
15. DELIVER TO BIG BEND PROJECT OFFICE DAVID R KANE / CONTRACTING OFFICER CENWO-OP-BB HC 69 BOX 74 CHAMBERLAIN SD 57325		CODE DACA45		16. ADMINISTERED BY SEE ITEM 9			
17 a. CONTRACTOR/ OFFEROR CODE FACILITY CODE		18 a. PAYMENT WILL BE MADE BY CODE					
17 b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER		18 b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18 a. UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM					
19. ITEM NO.		20. SCHEDULE OF SUPPLIES/ SERVICES		21 QUANTITY		22. UNIT	
		SEE SCHEDULE					
25. ACCOUNTING AND APPROPRIATION DATA						26. TOTAL AWARD AMOUNT	
27 a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1. 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED.						ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED	
27 b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED.						ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED	
28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN <u>2</u> COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED HEREIN.				29. AWARD OF CONTRACT: REFERENCE <input type="checkbox"/> OFFER DATED . YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:			
30 a. SIGNATURE OF OFFEROR/CONTRACTOR				31 a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)			
30 b. NAME AND TITLE OF SIGNER (TYPE OR PRINT)		30 c. DATE SIGNED		31 b. NAME OF CONTRACTING OFFICER (TYPE OR PRINT)		31 c. DATE SIGNED	
32 a. QUANTITY IN COLUMN 21 HAS BEEN <input type="checkbox"/> RECEIVED <input type="checkbox"/> INSPECTED <input type="checkbox"/> ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED				33. SHIP NUMBER <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		34. VOUCHER NUMBER	
						35. AMOUNT VERIFIED CORRECT FOR	
32 b. SIGNATURE OF AUTHORIZED GOVT. REPRESENTATIVE		32 c. DATE		36. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		37. CHECK NUMBER	
41 a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT				38. S/R ACCOUNT NUMBER		39. S/R VOUCHER NUMBER	
41 b. SIGNATURE AND TITLE OF CERTIFYING OFFICER		41 c. DATE		42a. RECEIVED BY (Print)		40. PAID BY	
				42b. RECEIVED AT (Location)			
				42c. DATE REC'D (YY/MM/DD)		42d. TOTAL CONTAINERS	

SECTION SF 1449 CONTINUATION SHEET

SERVICES AND SUPPLIES

BIG BEND HIGH VOLTAGE AIR SWITCH REPLACEMENT

ITEM No.	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	Removal and Disposal of Existing Air Switches and Bus Support Insulators	1	Job	XXXXXX	\$ _____
0002	Furnish and Install New Transformer Grounding Switches, 1200 Amp Type HSG	4	Ea	\$ _____	\$ _____
0003	Furnish and Install New Transformer Disconnect Switches, 1200 Amp Type MOD	4	Ea	\$ _____	\$ _____
0004	Furnish and Install New Line Grounding Switches, 1600 Amp Type G	2	Ea	\$ _____	\$ _____
0005	Furnish and Install New Line Disconnect Switches, 1600 Amp Type MOD	2	Ea	\$ _____	\$ _____
0006	Furnish and Install New Paralleling Bus Sectionalizer Switch, 1200 Amp Type HSG	1	Ea	\$ _____	\$ _____
0007	Furnish and Install New Bus Support Insulator Stacks	24	Ea	\$ _____	\$ _____
0008	Furnish Spare Parts	1	Lot	\$ _____	\$ _____
0009	Dispose of Asbestos Containing Material	150 EST	Lbs	\$ _____	\$ _____
XXXX	Contract Data (See DD Form 1423 Exhibit B)		XXX	XXXXXX	NSP
				TOTAL	\$ _____

NSP= Not Separately Priced

ESTIMATED BID ITEM The quantity for bit items marked EST is estimated and may be increased or decreased at the discretion of the Government.

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INSTRUCTIONS, CONDITIONS & NOTICES TO OFFERORS

1 GENERAL INSTRUCTIONS

1.1 SIMPLIFIED ACQUISITION PROCEDURES

Simplified acquisition procedures will be utilized to the maximum extent practicable in this solicitation as allowed for in Federal Acquisition Regulation (FAR) Subpart 13.5.

1.2 SUBMISSION OF QUOTATIONS

Quotations shall be either mailed or hand-carried as indicated below. Quotations will NOT BE PUBLICLY OPENED at the time indicated on Standard Form 1449 (Page 1)

Mailed quotations shall be addressed to the location as indicated on Standard form 1449 (Page 1), Block 9.

Hand-carried quotations shall be delivered to the U.S. Army Engineer District, Omaha to Contracting Division, Room 301, 106 South 15th Street, Omaha, NE 68102-1618.

Format: Hard Copy (paper format only (faxed, electronic, or oral submittals **will not** be accepted).

Required quotation submittal: Original + 2 copies of the following submittals are required.

- [1] Standard Form 1449, Price Schedule pages 1, 2, and 3.
- [2] Standard form 1449, Representations & Certifications pages 20 through 27
- [3] Technical or Product Literature
- [4] Past Performance References

NOTE: Failure to provide 2 copies of the original quotation documents or any of the identified submittals will be grounds for rejection of the quotation.

Reference Contract Clauses, FAR Clause 52.212-1 & FAR Clause 52.212-2, for additional information Regarding contents of quotations, submission of quotations, and evaluation of quotations.

1.2.1 PROPOSAL COMPOSITION AND SUBMISSION

Quotations shall demonstrate the merit of the technical approach offered and shall consist of:

1.2.1.1 Technical Data

(a) Disconnect Switch Manufacturing Details. Offerors shall give a complete description of the disconnect switch and accessories including details such as:

- Rated Maximum Voltage, kV
- Basic Impulse Insulation Level, kV Crest
- Continuous Current Rating, Amperes, rms
- Momentary Asymmetrical Current Rating, kA, rms
- Three second current rating
- Grounding switch making current, kA, rms (as applicable)
- Electric release grounding switch operating time, maximum, sec (as applicable)

(b) Disconnect Switch Installation Plans and Schedule. Offerors shall give a complete description of the disconnect switch installation process. This shall include details on mounting procedures alignment requirements, operating mechanism, and quality assurance procedures. Specific information on delivery and installation schedules shall be provided.

1.2.1.2 Past Performance.

(a) Previous switches furnished. Offerors shall give information on past jobs involving supply and installation of disconnect switches. As a minimum the offeror shall indicate years experience in the design, construction, assembly, of high voltage air switches equal to and larger than that required by this contract. Offerors shall submit information and references for their three most recent projects of similar size and scope including project name & location; contract number & cumulative amount; primary reference name, job title, address, & phone number; alternate reference name, job title, address, & phone number; and project narrative.

(b) Previous switches installed. As a minimum the offeror shall indicate years experience in the installation of high voltage air switches equal to and larger than that required by this contract. Offerors shall submit information and references for their three most recent projects of similar size and scope including project name & location; contract number & cumulative amount; primary reference name, job title, address, & phone number; alternate reference name, job title, address, & phone number; and project narrative.

Reference Contract Clauses, FAR 52.212-1 & FAR 52.212-2 for additional information regarding contents of quotations, submission of quotations, and evaluation of quotations.

1.2.2 DELIVERIES OR PERFORMANCE

1.2.2.1. TIME OF DELIVERY

The work shall be commenced under this contract within 30 calendar days after date of receipt of signed contract. All work under this contract shall be complete within 450 calendar days after date of receipt of signed contract.

1.2.2.2. PLACE OF DELIVERY / SITE OF ERECTION AND INSTALLATION

Equipment and materials supplied under this contract shall be delivered f.o.b. at the Big Bend Power Plant.

Mailing Address: U.S. Army Corps of Engineers
Big Bend Project Office
HC 69, Box 74
Chamberlain, SD 57325

Shipping Address: Big Bend Power Plant
Hwy 47, North
Fort Thompson, SD 57339

Point of Contact: Phone: (605) 245-2331
Fax: (605) 245- 2556
Tom Pringle x3003; Maintenance Foreman
Trevor McDonald x3002; Electrical Engineer
Dave Kane x3285; Chief, Technical Support

1.2.2.3. PRE-PERFORMANCE CONFERENCE

Within 3 working days after date of receipt of signed contract call Dave Kane at (605) 245-2331 x3285 and make arrangements for a pre-performance conference to be held at the project site. The purpose of the conference is to verify submittal requirements, discuss construction and testing procedures, shop drawings, administration of the system, interrelationship of Contractor Quality Control and Government Quality Assurance, and to develop mutual understanding relative to details of the CQC system, including the forms to be used for recording the CQC operations.

1.2.2.4. INSTALLATION SCHEDULE

The Contractor shall coordinate a mutually agreeable installation schedule with the Government during available outage periods. Outages shall be scheduled 12 weeks in advance. The Government's ability to grant an outage is contingent on reservoir water levels, power demands, and seasonal requirements. Outage proposals will be considered for dates during the following two periods; the first from late August through early November 2002 and the second from late February through May 2003.

Installation of the switches will require multiple generator and transmission line outages. Work shall be accomplished in an expedient manner. The following outage schedule shall be followed in order to limit outage impact and duration. The Contractor shall not exceed the outage durations listed. The contractor is responsible for removing and installing jumper connections as identified.

BIG BEND DISCONNECT SWITCH OUTAGES

North Half

4 hour outage Units 1, 2, 3 & 4, Fort Thompson Line 1
Remove jumpers and insulator stack stems from tower 2
Keep Line 1 de-energized from sub and closed 7089 to feed Units 3&4.

8 day outage Units 1 & 2
Install switches 1081, 1080, 1083, 1090
Install new insulator stacks on tower 2 (leave jumpers off tower 2)

Perform switching order to open 7089 to clear Units 3 & 4 and energize Line 1 from substation to energize units 1&2.

4 day outage Units 3 & 4
Install switches 2081/2080

Center Section 7089

4 hour outage Units 5-8, Fort Thompson Line 2, continue Units 3&4 outage
Remove jumpers and insulator stack stems from tower 4
Re-energize Line 2 to feed Units 7&8.

4 day outage Units 3, 4, 5 & 6
Install switch 7089

South Half

5 hour outage Units 1-6, Fort Thompson Line 1
Install jumpers on Tower 2
Open 7089, energize Line 1

6 day outage for Units 5&6
Install switches 3081, 3080
Install new insulator stacks on tower 4 (leave jumpers off tower 4)

Perform switching order to close 7089 to energize Units 5&6 and de-energize Line 2 from substation to clear Units 7&8.

8 day outage Units 7 & 8
Install switches 4081, 4080, 4083, 4090

5 hour outage Units 5-8, Fort Thompson Line 2
Install jumpers on tower 4

1.3 SOLICITATION RESTRICTIONS

This solicitation is unrestricted and open to both large and small business participation. The small business size standard for this solicitation is 500 employees under NAICS code 33593. However, the small business size standard for a concern which submits an offer in its own name, but which proposes to furnish an item which it did not itself manufacture, is 500 employees.

1.4 APPROPRIATION AND AUTHORITY

APPROPRIATION: 96 X 3123 Operation and Maintenance General

AUTHORITY: The work provided herein is authorized: by the Food Control Act approved 22 December 1944, Public Law 534, 78th Congress, 2nd Session (H.R. 4485) as amended.

1.5 DESCRIPTION OF REQUIREMENT

Supply and delivery of seven 230kv, motor operated, outdoor, high voltage air disconnect and grounding switches. Supply and delivery of associated bus support insulators. Services to include removal and proper disposal of existing Swaegerwood air switches and associated bus support insulators. Services shall also include installation of new switches, line connections, additional auxiliary switches, modifications, adjustments electrical and functional tests.

2 ESTIMATED COST

The estimated cost of this project is between \$200,000 - \$400,000.

3 FAR 52.214-34 SUBMISSION OF OFFERS IN THE ENGLISH LANGUAGE (APRIL 1991)

Offers submitted in response to this solicitation shall be in the English language. Offers received in other than English shall be rejected.

(End of Provision)

4 FAR.214-35 SUBMISSION OF OFFERS IN U.S. CURRENCY

Offers submitted in response to this solicitation shall be in terms of U.S. dollars. Offers received in other than U.S. dollars shall be rejected.

(End of Provision)

5 AVAILABILITY OF SPECIFIC, STANDARD, AND DESCRIPTIONS.

5.1FAR52.211-2 Availability of Specifications Listed in the DoD Index of Specifications and Standards (DoDISS) and Descriptions Listed in the Acquisition Management Systems and Data Requirements Control List, DoD 5010.12-L. (Dec 1999)

Copies of specifications, standards, and data item descriptions cited in this solicitation may be obtained -

- (a) From the ASSIST database via the Internet at <http://assist.daps.mil>; or
- (b) By submitting a request to the --

Department of Defense Single Stock Point (DoDSSP)

Building 4, Section D
700 Robbins Avenue
Philadelphia, PA 19111-5094
Telephone (215) 697-2667/2179
Facsimile (215) 697-1462.

(End of Provision)

5.2 CORPS OF ENGINEERS SPECIFICATIONS.

Corps of Engineers specifications of the CRD-C series may be obtained from the National Institute of Building Science Construction Criteria Base (CCB) on CD-ROM. Contact the CCB directly at (202) 289-7800 for an order form or obtain an order form at the following internet address:
<http://www.wes.army.mil/SL/MTL/handbook.htm>.

5.3 COMMERCIAL (NON-GOVERNMENT) SPECIFICATION, STANDARD, AND DESCRIPTIONS

These specifications, standards, and descriptions are not available from Government sources. They may be obtained from the publishers.

6 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

Whenever a contract or modification of contract price is negotiated, the Contractor's cost proposals for equipment ownership and operating expenses shall be determined in accordance with the requirements of paragraph: EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE, contained in Section: 00800, SPECIAL CONTRACT REQUIREMENTS of the specifications. A copy of EP 1110-1-8 "Construction Equipment Ownership and Operating Expense Schedule" is available for review at the office listed in paragraph: SITE VISIT (CONSTRUCTION) herein or at the following Internet address:
<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep.htm>
(copy also included on CD-ROM issued with this solicitation).

7 TAXES – STATE OF SOUTH DAKOTA

7.1 EXCISE TAX.

There is an excise tax on the total gross receipts of all prime contractors and subcontractors engaged in realty improvement contracts.

7.2 USE TAX.

Government furnished construction material used by the Contractor in the performance of the work is subject to use tax.

7.3 INFORMATION.

The "excise" and "use" taxes shall be included in the price or prices bid. For information concerning the taxes contact: Sales and Use Tax Division, Capital Lake Plaza, Pierre, SD.

8 SITE VISIT

(a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

(b) Based upon the nature of this repair work, it is recommended that a pre-bid site inspection be performed to ascertain the extent of the transformer damage, and identify possible transformer lifting and moving restrictions.

The Government will make access available for internal inspections during working hours and upon seventy-two (72) hours advance notification. The site visit will be held at U.S. Army Corps of Engineers, **Big Bend Power Plant, Hwy 47, North, Fort Thompson, South Dakota 57339. Contact Dave Kane at (605) 245-2331 ext. 3285.**

9 QUESTIONS AND COMMENTS.

Questions and/or comments relative to these solicitation documents should be submitted via e-mail or mailed to the address identified in paragraph: AVAILABILITY OF QUOTATION RESULTS below. Comments should reach this office no later than 20 calendar days prior to the date set for opening of bids, if feasible, in order that changes, if needed, may be added by amendment. E-mail address, FAX numbers, items for questions and points of contact are listed below. Phone calls with questions should be made between 8:30 a.m. and 3:30 p.m. (Central Standard Time) Monday through Friday.

<u>Items for Question</u>	<u>Points of Contact/ Phone numbers/ FAX Numbers</u>	<u>E-mail Addresses</u>
Contractual Matters: (Ordering of CD-ROM/ Amendments/Quote Results/Receipt of Quotations)	Aleasha Cotton 402) 221-3910 phone 402-221-4530 (Fax)	aleasha.d.cotton@usace.army.mil
Planholder's List	See paragraph: PLAN HOLDER'S LIST, below.	
Small Business Matters	Hubert Carter 402-221-4110 (phone)	hubert.j.carter@usace.army.mil
Technical Contents Of Plans and Specification	Gary Hinkle 402) 221-4684	gary.a.hinkle@usace.army.mil
CD-ROM	Specifications Section Marylee Stobbe 402-221-4411 (Phone) 402-221-3842 (Fax)	marylee.f.stobbe@usace.army.mil
Site Inspection	See Paragraph: SITE VISIT Above	

**** -The Government may elect to send a notification that an amendment has been posted to the Government's web address. It shall be the Contractor's, Subcontractor's and Supplier's responsibility to check the Government's web address for amendment.**

9.1 PLAN HOLDER'S LIST.

The CD-ROM will provide a list of plan holders that have registered at the time the CD-ROM was created. It is offeror's responsibility to check for any updates to the plan holder's list, which is available at the following web address:

<http://ebs-nwo.wes.army.mil/>

9.2 SELECTION OF OFFEROR

Selection of offeror will be posted to the web but results WILL NOT be immediately available on the receipt date. The quotations will be evaluated and a successful offeror selected on a best value basis. Upon selection and contract award, successful offeror will be announced. No pricing will be given.

10 TYPE OF CONTRACT (Apr 1984)

The Government contemplates award of a Firm Fixed Price contract resulting from this solicitation. (FAR 52.216-1)

11 DFAR 252.204-7004 REQUIRED CENTRAL CONTRACTOR REGISTRATION (NOV 2001)

(a) Definitions. As used in this clause-

(1) "Central Contractor Registration (CCR) database" means the primary DoD repository for contractor information required for the conduct of business with DoD.

(2) "Data Universal Number System (DUNS) number" means the 9-digit number assigned by Dun and Bradstreet Information Services to identify unique business entities.

(3) "Data Universal Numbering System +4 (DUNS+4) number" means the DUNS number assigned by Dun and Bradstreet plus a 4-digit suffix that may be assigned by a parent (controlling) business concern. This 4-digit suffix may be assigned at the discretion of the parent business concern for such purposes as identifying subunits or affiliates of the parent business concern.

(4) "Registered in the CCR database" means that all mandatory information, including the DUNS number or the DUNS+4 number, if applicable, and the corresponding Commercial and Government Entity (CAGE) code, is in the CCR database; the DUNS number and the CAGE code have been validated; and all edits have been successfully completed.

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee must be registered in the CCR database prior to award, during performance, and through final payment of any contract resulting from this solicitation, except for awards to foreign vendors for work to be performed outside the United States.

(2) The offeror shall provide its DUNS or, if applicable, its DUNS+4 number with its offer, which will be used by the Contracting Officer to verify that the offeror is registered in the CCR database.

(3) Lack of registration in the CCR database will make an offeror ineligible for award.

(4) DoD has established a goal of registering an applicant in the CCR database within 48 hours after receipt of a complete and accurate application via the Internet. However, registration of an applicant submitting an application through a method other than the Internet may take up to 30 days. Therefore, offerors that are not registered should consider applying for registration immediately upon receipt of this solicitation.

(c) The Contractor is responsible for the accuracy and completeness of the data

within the CCR, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR database after the initial registration, the Contractor is required to confirm on an annual basis that its information in the CCR database is accurate and complete.

(d) Offerors and contractors may obtain information on registration and annual confirmation requirements by calling 1-888-227-2423, or via the Internet at <http://www.ccr.gov>.

(End of clause)

SPECIAL CONTRACT REQUIREMENTS

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- 4- DATA REQUIREMENTS

SPECIAL CONTRACT REQUIREMENTS

12.1- SUBMITTAL CONTRACTOR'S DRAWINGS AND DATA

12.1.1 Within 30 calendar days after date of receipt of signed contract, three copies of shop drawings as stated in paragraph 1.4 shall be submitted for approval. These drawings shall be complete and shall contain all required detailed information.

12.1.2 The Government will provide disks which have drawing files for all contract drawings which shall be used by the Contractor to create the Contractor's shop drawings.

12.1.3 All drawings and data submitted and approved will form a part of the contract. The sequence of submission of drawings shall be such that all information is available for checking each drawing when it is received. The drawing shall include parts lists and material schedules listing all items called out on the drawings.

12.1.4 Copies of each drawing for approval shall be submitted as indicated on DD Forms 1423 attached. Each submission of drawings must be accompanied by transmittal Form 4025 containing a list of drawings giving titles and numbers. Submittals shall be sent to the following addresses:

<u>Symbol</u>	<u>Address</u>
(1) CENWP-HDC-C	Department of the Army Portland District, U.S. Army Corps of Engineers ATTN: CENWP-HDC-C P.O. Box 2870 Portland, OR 97208-2870
(2) CENWO-OD-TM	Department of the Army Omaha District, U.S. Army Corps of Engineers ATTN: CENWO-OD-TM 106 S. 15 th Street Omaha, NE 68102-4978

Submittals will be reviewed and processed as follows:

a. Action Code A (Approved as Submitted). Submittals approved without correction will be stamped "Approved".

b. Action Code B (Approved, Except as Noted, Resubmission Not Required). Submittals which have minor discrepancies will be corrected and stamped "Approved as Corrected" or "Except as Noted." Corrections will be identified.

c. Action Code C (Approved, Except as Noted, Resubmission Required). Drawings which are incomplete or require more than minor corrections will be marked in red to indicate necessary corrections and "Approved, Except as Noted Resubmission Required."

d. Action Code E (Disapproved). Submittals which are fundamentally in error, cover wrong equipment or construction, or require extensive corrections will be stamped "Disapproved." An explanation will be furnished on the print or on ENG Form 4025 indicating reason for disapproval.

e. Resubmittal. Resubmittal will not be required for drawings with Action Code A or B unless subsequent changes are made by the Contractor or by a contract modification. For drawings with Action Code C or E, corrections required shall be made, any changes shall be noted by dating the revisions to correspond with the change request date, and the drawings shall be promptly resubmitted for review. Government costs incurred after the first resubmittal will be charged to the Contractor.

12.1.5 The Government will return submittal Forms 4025. An A, B, or C Action Code will authorize the Contractor to proceed with the fabrication of the equipment covered by such drawings, subject to the corrections, if any, indicated thereon or described in the letter of transmittal. Required revisions shall be resubmitted by the same procedure as previously described. Every revision made during the life of the contract shall be shown by number, date, and subject in a revision block and a notation shall be made in the drawing margin to permit rapid location of the revision. The time consumed by the Contractor in submitting and obtaining approval of assembly and shop drawings shall be included in the time allowed for completion of the contract.

12.1.6 Upon receipt of prints which have Action Codes C, or E the Contractor shall within 30 calendar days after receipt, submit corrected prints of each drawing to the address in paragraph 1.2.2 (above). If revisions are made after a drawing has been assigned an A or B code, the Contractor shall furnish corrected prints subsequent to each revision.

12.1.7 No manufacturing work shall be performed prior to the approval of drawings. Approval of the drawings shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory. Approval of such drawings will not relieve the Contractor of responsibility for any error which may exist, as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work.

12.2- FINAL DRAWINGS

In addition to the drawings required above, one complete set of final drawing files shall be prepared using Bentley Computer-Aided Design System. Drawings shall be identical when viewed on the monitor and when plotted as the hard copy drawings submitted. This includes, but is not limited to, all drawn components, text for notes, dimensions, symbols, scales border, and title block information. Drawings translated from other CADD format shall include level assignments and shall be checked by the Contractor for proper translation. Drawings on a single level will not be acceptable. All detailed design drawings shall be developed on a computer-aided design and drafting CADD system. The CADD system shall be capable of providing design drawings that are fully compatible with the Nashville District Bentley Computer-Aided Design System which utilizes Microstation SE or J. Final drawings files shall be submitted on 3-1/2 inch high density floppies, ZIP disks or CD-ROM. If the Contractor utilizes any CADD system other than Bentley to perform all or part of the required work, it will be the Contractor's responsibility to convert the data into the required files and to perform any editing or quality control/assurance needed to obtain the final product. The compatibility shall include, but not be limited to 63 level assignments, color tables capable of supporting 256 colors, and be capable of supporting 20 fonts.

12.3- SUBMITTAL DESCRIPTIONS

The submittals described below are those required and are further described in the technical sections of the specifications. Submittals required by the CONTRACT CLAUSES and other nontechnical parts of the contract are not included.

SD-01 Data

Submittals which provide calculations, descriptions, or documentation regarding the work.

SD-04 Drawings

Submittals which graphically show relationship of various components of the work, schematic diagrams of systems, details of fabrication, layouts of particular elements, connections, and other relational aspects of the work. All drawings shall be submitted in both paper and electronic formats.

SD-06 Instructions

Preprinted material describing installation of a product, system or material, including special notices and material safety data sheets, if any, concerning impedance's, hazards, and safety precautions. Operation and maintenance manuals are considered deliverables under the contract and not submittals; however, when necessary to review information to be included in the final manuals such information to be included in the final manuals should be called for under this submittal description.

SD-07 Schedules

Tabular lists showing location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

SD-08 Statements

A document, required of the Contractor, or through the Contractor, from a supplier, installer, manufacturer, or other lower tier Contractor, the purpose of which is to confirm the quality or orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel, qualifications, or other verifications of quality.

SD-09 Reports

Reports of inspections or tests, including analysis and interpretation of test results. Each report shall be properly identified. Test methods used shall be identified and test results shall be recorded.

SD-13 Certificates

Statement signed by an official authorized to certify on behalf of the manufacturer of a product, system or material, attesting that the product, system or material meets specified requirements. The statement must be dated after the award of this contract, must state the Contractor's name and address, must name the project and location, and must list the specific requirements which are being certified.

SD-14 Samples

Samples, including both fabricated and unfabricated physical examples of materials, products, and units of work as complete units or as portions of units of work.

SD-18 Records

Documentation to record compliance with technical or administrative requirements.

12.4- DATA REQUIREMENTS (1988 OCT)

The Contractor is required to deliver the data items listed on the DD form 1423 (Contract Data Requirements List) and data items identified in and deliverable under any contract clause of FAR Subpart 52.2 and DoD FAR Supplement Subpart 252.2 made a part of the contract. The codes used on the DD form 1423 are defined as follows:

<u>Code</u>	<u>Block</u>	<u>Definition</u>
(1) OTIME	10	One time.
(2) XX	7	Inspection and acceptance requirements specified elsewhere in contract.
(3) A	8	Requires specific approval.
(4) ONE/R	10	One time plus revisions.

(5) DAC	12	Days after receipt of contract.
(6) DAR	13	Days after receipt of drawings APPROVED AS NOTED or RETURNED FOR CORRECTION.
(7) DBD	13	Days before delivery.
(8) AS REQD	10,11,12	As required.
(9) MTHLY	10	Monthly.
(10) O	11	Submit on last day of the month.

13 WAGE RATES**GENERAL WAGE DECISION NUMBER SD010007**

General Decision Number SD010007

 General Decision Number SD010007
 Superseded General Decision No. SD000007
 State: South Dakota

Construction Type:
 BUILDING

County(ies):
 AURORA DOUGLAS MCCOOK
 BEADLE HAND MINER
 BON HOMME HANSON MOODY
 BROOKINGS HUGHES SANBORN
 BRULE HUTCHINSON SULLY
 BUFFALO HYDE TURNER
 CHARLES MIX JERAULD YANKTON
 CLAY KINGSBURY
 DAVISON LAKE

BUILDING CONSTRUCTION PROJECTS (Does not include single family
 homes and apartments up to and including four (4) stories)

Modification Number Publication Date

0	03/02/2001
1	04/06/2001

COUNTY(ies):
 AURORA DOUGLAS MCCOOK
 BEADLE HAND MINER
 BON HOMME HANSON MOODY
 BROOKINGS HUGHES SANBORN
 BRULE HUTCHINSON SULLY
 BUFFALO HYDE TURNER
 CHARLES MIX JERAULD YANKTON
 CLAY KINGSBURY
 DAVISON LAKE

BRSD0001B 05/01/2000

	Rates	Fringes
AURORA, BEADLE, BRULE, BUFFALO, CLAY, DAVISON, HAND, HANSON, HUGHES, HYDE, JERAULD, LAKE, MCCOOK, MINER, MOODY, SANBORN, SULLY & TURNER COUNTIES:		
BRICKLAYERS/BLOCKLAYERS	20.00	4.60

BRSD0002B 05/01/1999

	Rates	Fringes
BON HOMME, CHARLES MIX, DOUGLAS, HUTCHINSON & YANKTON COUNTIES:		
BRICKLAYERS/BLOCKLAYERS	23.40	1.50

BRSD0005B 05/01/2000

	Rates	Fringes
BROOKINGS & KINGSBURY COUNTIES: BRICKLAYERS/BLOCKLAYERS	19.95	4.25

* SFSD0669A 04/01/2001

	Rates	Fringes
SPRINKLER FITTERS	22.24	6.50

SHEE1000G 06/01/1998

	Rates	Fringes
SHEET METAL WORKERS: All HVAC Work, Including Pipe & Duct Work and Installation of Systems	16.26	1.96

SUSD1001A 03/20/2000

	Rates	Fringes
CARPENTERS:		
Form Building & Form Setting	11.58	.58
Drywall Hanging/Framing & Metal Stud Work	11.85	1.53
Acoustical Work	12.42	
All Other Work	12.34	1.40
CONCRETE FINISHERS/CEMENT MASONS	11.76	.58
ELECTRICIANS:		
Low Voltage Wiring for Computers	14.40	2.36
All Other Work	15.48	3.30
GLAZIERS	10.66	1.04
IRONWORKERS:		
Reinforcing	9.08	.70
Structural	9.39	.77
LABORERS:		
Common	8.25	.84
Brick Tender	10.50	
Plasterer Tender	8.00	
PAINTERS: Brush; Roller; & Spray	11.19	1.21
PLASTERERS	15.75	
PLUMBERS, Excluding HVAC Work	13.20	2.00
POWER EQUIPMENT OPERATORS:		
Backhoe	11.50	
Crane	10.50	.58
Front End Loader	13.28	
ROOFERS	10.33	.40
SHEET METAL WORKERS:		
All Work, excluding HVAC, Pipe & Duct Work & Installation of Systems	11.28	.51
TRUCK DRIVERS, Dump	9.00	.56

WELDERS - Receive rate prescribed for craft performing operation
to which welding is incidental.
=====Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after

award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

14 LIST OF DOCUMENTS

TABLE OF CONTENTS

1. 1423's (See CD-Rom)
2. 4025's (See CD-Rom)

REPRESENTATIONS & CERTIFICATIONS

The offeror makes the following certification and representations as a part of the quotation, shall check the appropriate boxes, fill in the appropriate information and submit with Standard Form 1449.

52.212-3 OFFEROR REPRESENTATIONS AND CERTIFICATIONS--COMMERCIAL ITEMS

Offeror Representations and Certifications – Commercial Items (Feb 2002)

(a) Definitions. As used in this provision:

"Emerging small business" means a small business concern whose size is no greater than 50 percent of the numerical size standard for the NAICS code designated.

"Forced or indentured child labor" means all work or service-

(1) Exacted from any person under the age of 18 under the menace of any penalty for its nonperformance and for which the worker does not offer himself voluntarily; or

(2) Performed by any person under the age of 18 pursuant to a contract the enforcement of which can be accomplished by process of penalties.

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service--disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern" means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and size standards in this solicitation.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern" means a small business concern--

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(b) Taxpayer Identification Number (TIN) (26 U.S.C. 6109, 31 U.S.C. 7701). (Not applicable if the offeror is required to provide this information to a central contractor registration database to be eligible for award.)

(1) All offerors must submit the information required in paragraphs (b)(3) through (b)(5) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the Internal Revenue Service (IRS).

(2) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(3) Taxpayer Identification Number (TIN).

___ TIN:-----

___ TIN has been applied for.

___ TIN is not required because:

___ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

Offeror is an agency or instrumentality of a foreign government;

___ Offeror is an agency or instrumentality of the Federal Government.

(4) Type of organization.

___ Sole proprietorship;

___ Partnership;

___ Corporate entity (not tax-exempt);

___ Corporate entity (tax-exempt);

___ Government entity (Federal, State, or local);

___ Foreign government;

___ International organization per 26 CFR 1.6049-4;

___ Other-----

(5) Common parent.

___ Offeror is not owned or controlled by a common parent;

___ Name and TIN of common parent:

Name-----

TIN-----

(c) Offerors must complete the following representations when the resulting contract is to be performed inside the United States, its territories or possessions, Puerto Rico, the Trust Territory of the Pacific Islands, or the District of Columbia. Check all that apply.

(1) Small business concern. The offeror represents as part of its offer that it () is, () is not a small business concern.

(2) Veteran-owned small business concern. (Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.) The offeror represents as part of its offer that it () is, () is not a veteran-owned small business concern.

(3) Service-disabled veteran-owned small business concern. (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (c)(2) of this provision.) The offeror represents as part of its offer that it () is, () is not a service-disabled veteran-owned small business concern.

(4) Small disadvantaged business concern. (Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.) The offeror represents, for general statistical purposes, that it () is, () is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(5) Women-owned small business concern. (Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.) The offeror represents that it () is, () is not a women-owned small business concern.

Note: Complete paragraphs (c)(6) and (c)(7) only if this solicitation is expected to exceed the simplified acquisition threshold.

(6) Women-owned business concern (other than small business concern). (Complete only if the offeror is a women-owned business concern and did not represent itself as a small business concern in paragraph (c)(1) of this provision.) The offeror represents that it () is, a women-owned business concern.

(7) Tie bid priority for labor surplus area concerns. If this is an invitation for bid, small business offerors may identify the labor surplus areas in which costs to be incurred on account of manufacturing or production (by offeror or first-tier subcontractors) amount to more than 50 percent of the contract price:

(8) Small Business Size for the Small Business Competitiveness Demonstration Program and for the Targeted Industry Categories under the Small Business Competitiveness Demonstration Program. (Complete only if the offeror has represented itself to be a small business concern under the size standards for this solicitation.)

(i) (Complete only for solicitations indicated in an addendum as being set-aside for emerging small businesses in one of the four designated industry groups (DIGs).) The offeror represents as part of its offer that it () is, () is not an emerging small business.

(ii) (Complete only for solicitations indicated in an addendum as being for one of the targeted industry categories (TICs) or four designated industry groups (DIGs).) Offeror represents as follows:

(A) Offeror's number of employees for the past 12 months (check the Employees column if size standard stated in the solicitation is expressed in terms of number of employees); or

(B) Offeror's average annual gross revenue for the last 3 fiscal years (check the Average Annual Gross Number of Revenues column if size standard stated in the solicitation is expressed in terms of annual receipts).

(Check one of the following):

Average Annual

Number of Employees Gross Revenues

☐ 50 or fewer ☐ \$1 million or less

☐ 51 - 100 ☐ \$1,000,001 - \$2 million

☐ 101 - 250 ☐ \$2,000,001 - \$3.5 million

☐ 251 - 500 ☐ \$3,500,001 - \$5 million

☐ 501 - 750 ☐ \$5,000,001 - \$10 million

☐ 751 - 1,000 ☐ \$10,000,001 - \$17 million

☐ Over 1,000 ☐ Over \$17 million

(9) (Complete only if the solicitation contains the clause at FAR 52.219-23, Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns or FAR 52.219-25, Small Disadvantaged Business Participation Program-Disadvantaged Status and Reporting, and the offeror desires a benefit based on its disadvantaged status.)

(i) General. The offeror represents that either--

(A) It () is, () is not certified by the Small Business Administration as a small disadvantaged business concern and identified, on the date of this representation, as a certified small disadvantaged business concern in the database maintained by the Small Business Administration (PRO-Net), and that no material change in disadvantaged ownership and control has occurred since its certification, and, where the concern is owned by one or more individuals claiming disadvantaged status, the net worth of each individual upon whom the certification is based does not exceed \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); or

(B) It () has, () has not submitted a completed application to the Small Business Administration or a Private Certifier to be certified as a small disadvantaged business concern in accordance with 13 CFR 124, Subpart B, and a decision on that application is pending, and that no material change in disadvantaged ownership and control has occurred since its application was submitted.

(ii) Joint Ventures under the Price Evaluation Adjustment for Small Disadvantaged Business Concerns. The offeror represents, as part of its offer, that it is a joint venture that complies with the requirements in 13 CFR 124.1002(f) and that the representation in paragraph (c)(9)(i) of this provision is accurate for the small disadvantaged business concern that is participating in the joint venture. (The offeror shall enter the name of the small disadvantaged business concern that is participating in the joint venture: _____.)

(10) (Complete if the offeror has represented itself as disadvantaged in paragraph (c)(4) or (c)(9) of this provision.) (The offeror shall check the category in which its ownership falls):

☐ Black American.

☐ Hispanic American.

☐ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

☐ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

____ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

____ Individual/concern, other than one of the preceding.

(11) HUBZone small business concern. (Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.) The offeror represents as part of its offer that—

(i) It () is, () is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal place of ownership, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It () is, () is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (c)(11)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: _____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(d) Certifications and representations required to implement provisions of Executive Order 11246--

(1) Previous Contracts and Compliance. The offeror represents that--

(i) It () has, () has not, participated in a previous contract or subcontract subject either to the Equal Opportunity clause of this solicitation, the and

(ii) It () has, () has not, filed all required compliance reports.

(2) Affirmative Action Compliance. The offeror represents that--

(i) It () has developed and has on file, () has not developed and does not have on file, at each establishment, affirmative action programs required by rules and regulations of the Secretary of Labor (41 CFR Subparts 60-1 and 60-2), or

(ii) It () has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(e) Certification Regarding Payments to Influence Federal Transactions (31 U.S.C. 1352). (Applies only if the contract is expected to exceed \$100,000.) By submission of its offer, the offeror certifies to the best of its knowledge and belief that no Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with the award of any resultant contract.

(f) Buy American Act--Balance of Payments Program Certificate. (Applies only if the clause at Federal Acquisition Regulation (FAR) 52.225-1, Buy American Act--Balance of Payments Program--Supplies, is included in this solicitation.)

(1) The offeror certifies that each end product, except those listed in paragraph (f)(2) of this provision, is a domestic end product as defined in the clause of this solicitation entitled "Buy American Act--Balance of Payments Program--Supplies" and that the offeror has considered components of unknown origin to have been mined, produced, or manufactured outside the United States. The offeror shall list as foreign end products those end products manufactured in the United States that do not qualify as domestic end products.

(2) Foreign End Products:

Line Item No.:-----

Country of Origin:-----

(List as necessary)

(3) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25.

(g)(1) Buy American Act--North American Free Trade Agreement--Israeli Trade Act--Balance of Payments Program Certificate. (Applies only if the clause at FAR 52.225-3, Buy American Act--North American Free Trade Agreement--Israeli Trade Act--Balance of Payments Program, is included in this solicitation.)

(i) The offeror certifies that each end product, except those listed in paragraph (g)(1)(ii) or (g)(1)(iii) of this provision, is a domestic end product as defined in the clause of this solicitation entitled ``Buy American Act--North American Free Trade Agreement--Israeli Trade Act--Balance of Payments Program" and that the offeror has considered components of unknown origin to have been mined, produced, or manufactured outside the United States.

(ii) The offeror certifies that the following supplies are NAFTA country end products or Israeli end products as defined in the clause of this solicitation entitled ``Buy American Act--North American Free Trade Agreement--Israeli Trade Act--Balance of Payments Program":

NAFTA Country or Israeli End Products

Line Item No.:-----

Country of Origin:-----

(List as necessary)

(iii) The offeror shall list those supplies that are foreign end products (other than those listed in paragraph (g)(1)(ii) of this provision) as defined in the clause of this solicitation entitled ``Buy American Act--North American Free Trade Agreement--Israeli Trade Act--Balance of Payments Program." The offeror shall list as other foreign end products those end products manufactured in the United States that do not qualify as domestic end products.

Other Foreign End Products

Line Item No.:-----

Country of Origin:-----

(List as necessary)

(iv) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25.

(2) Buy American Act--North American Free Trade Agreements--Israeli Trade Act--Balance of Payments Program Certificate, Alternate I (Feb 2000). If Alternate I to the clause at FAR 52.225-3 is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(ii) The offeror certifies that the following supplies are Canadian end products as defined in the clause of this solicitation entitled ``Buy American Act--North American Free Trade Agreement--Israeli Trade Act--Balance of Payments Program":

Canadian End Products

Line Item No.:-----

(List as necessary)

(3) Buy American Act--North American Free Trade Agreements--Israeli Trade Act--Balance of Payments Program Certificate, Alternate II (Feb 2000). If Alternate II to the clause at FAR 52.225-3 is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(ii) The offeror certifies that the following supplies are Canadian end products or Israeli end products as defined in the clause of this solicitation entitled ``Buy American Act--North American Free Trade Agreement--Israeli Trade Act--Balance of Payments Program":

Canadian or Israeli End Products

Line Item No.:-----

Country of Origin:-----

(List as necessary)

(4) Trade Agreements Certificate. (Applies only if the clause at FAR 52.225-5, Trade Agreements, is included in this solicitation.)

(i) The offeror certifies that each end product, except those listed in paragraph (g)(4)(ii) of this provision, is a U.S.-made, designated country, Caribbean Basin country, or NAFTA country end product, as defined in the clause of this solicitation entitled ``Trade Agreements."

(ii) The offeror shall list as other end products those end products that are not U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products.

Other End Products

Line Item No.:-----

Country of Origin:-----

(List as necessary)

(iii) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25. For line items subject to the Trade Agreements Act, the Government will evaluate offers of U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products without regard to the restrictions of the Buy American Act or the Balance of Payments Program. The Government will consider for award only offers of U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products unless the Contracting Officer determines that there are no offers for such products or that the offers for such products are insufficient to fulfill the requirements of the solicitation.

(h) Certification Regarding Debarment, Suspension or Ineligibility for Award (Executive Order 12549). (Applies only if the contract value is expected to exceed the simplified acquisition threshold.) The offeror certifies, to the best of its knowledge and belief, that the offeror and/or any of its principals--

(1) () Are, () are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency; and

(2) () Have, () have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: Commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a Federal, state or local government contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or Commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(3) () Are, () are not presently indicted for, or otherwise criminally or civilly charged by a Government entity with, commission of any of these offenses.

(i) Certification Regarding Knowledge of Child Labor for Listed End Products (Executive Order 13126). (The Contracting Officer must list in paragraph (i)(1) any end products being acquired under this solicitation that are included in the List of Products Requiring Contractor Certification as to Forced or Indentured Child Labor, unless excluded at 22.1503(b).)

(1) Listed end products.

Listed End Product

Listed Countries of Origin

(2) Certification. (If the Contracting Officer has identified end products and countries of origin in paragraph (i)(1) of this provision, then the offeror must certify to either (i)(2)(i) or (i)(2)(ii) by checking the appropriate block.)

() (i) The offeror will not supply any end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product.

() (ii) The offeror may supply an end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product. The offeror certifies that it has made a good faith effort to determine whether forced or indentured child labor was used to mine, produce, or manufacture any such end product furnished under this contract. On the basis of those efforts, the offeror certifies that it is not aware of any such use of child labor.

(End of provision)

CONTRACT CLAUSES

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://www.arnet.gov/far>

<http://www.acq.osd.mil/dp.dfars.html>

CLAUSES INCORPORATED BY REFERENCE:

52.222-4	Contract Work Hours and Safety Standards Act - Overtime Compensation	SEP 2000
52.222-6	Davis Bacon Act	FEB 1995
52.222-9	Apprentices and Trainees	FEB 1988
52.222-10	Compliance with Copeland Act Requirements	FEB 1988
52.222-13	Compliance with Davis-Bacon and Related Act Regulations.	FEB 1988
52.222-15	Certification of Eligibility	FEB 1988
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
52.229-3	Federal, State And Local Taxes	JAN 1991
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984
52.246-12	Inspection of Construction	AUG 1996
252.243-7001	Pricing Of Contract Modifications	DEC 1991

CLAUSES INCORPORATED BY FULL TEXT

52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995)

(a) The Government suspends or debar Contractors to protect the Government's interests. The Contractor shall not enter into any subcontract in excess of the \$25,000 with a Contractor that is debarred, suspended, or proposed for debarment unless there is a compelling reason to do so.

(b) The Contractor shall require each proposed first-tier subcontractor, whose subcontract will exceed \$25,000, to disclose to the Contractor, in writing, whether as of the time of award of the subcontract, the subcontractor, or its principles, is or is not debarred, suspended, or proposed for debarment by the Federal Government.

(c) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs). The notice must include the following:

(1) The name of the subcontractor.

(2) The Contractor's knowledge of the reasons for the subcontractor being on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(3) The compelling reason(s) for doing business with the subcontractor notwithstanding its inclusion on the List of

Parties Excluded from Federal Procurement and Nonprocurement Programs.

(4) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

52.212-1 INSTRUCTIONS TO OFFERORS--COMMERCIAL ITEMS (OCT 2000)

(a) North American Industry Classification System (NAICS) code and small business size standard. The NAICS code and small business size standard for this acquisition appear in Block 10 of the solicitation cover sheet (SF 1449). However, the small business size standard for a concern which submits an offer in its own name, but which proposes to furnish an item which it did not itself manufacture, is 500 employees.

(b) Submission of offers. Submit signed and dated offers to the office specified in this solicitation at or before the exact time specified in this solicitation. Offers may be submitted on the SF 1449, letterhead stationery, or as otherwise specified in the solicitation. As a minimum, offers must show--

(1) The solicitation number;

(2) The time specified in the solicitation for receipt of offers;

(3) The name, address, and telephone number of the offeror;

(4) A technical description of the items being offered in sufficient detail to evaluate compliance with the requirements in the solicitation. This may include product literature, or other documents, if necessary;

(5) Terms of any express warranty;

(6) Price and any discount terms;

(7) "Remit to" address, if different than mailing address;

(8) A completed copy of the representations and certifications at FAR 52.212-3;

(9) Acknowledgment of Solicitation Amendments;

(10) Past performance information, when included as an factor, to include recent and relevant contracts for the same or similar items and other references (including contract numbers, points of contact with telephone numbers and other relevant information); and

(11) If the offer is not submitted on the SF 1449, include a statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation. Offers that fail to furnish required representations or information, or reject the terms and conditions of the solicitation may be excluded from consideration.

(c) Period for acceptance of offers. The offeror agrees to hold the prices in its offer firm for 30 calendar days from the date specified for receipt of offers, unless another time period is specified in an addendum to the solicitation.

(d) Product samples. When required by the solicitation, product samples shall be submitted at or prior to the time specified for receipt of offers. Unless otherwise specified in this solicitation, these samples shall be submitted at no expense to the Government, and returned at the sender's request and expense, unless they are destroyed during preaward testing.

(e) Multiple offers. Offerors are encouraged to submit multiple offers presenting alternative terms and conditions or commercial items for satisfying the requirements of this solicitation. Each offer submitted will be evaluated separately.

(f) Late submissions, modifications, revisions, and withdrawals of offers:

(1) Offerors are responsible for submitting offers, and any modifications, revisions, or withdrawals, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that offers or revisions are due.

(2)(i) Any offer, modification, revision, or withdrawal of an offer received at the Government office designated in the solicitation after the exact time specified for receipt of offers is "late" and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and--

(A) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of offers; or

(B) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or

(C) If this solicitation is a request for proposals, it was the only proposal received.

(ii) However, a late modification of an otherwise successful offer, that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(3) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the offer wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(4) If an emergency or unanticipated event interrupts normal Government processes so that offers cannot be received at the Government office designated for receipt of offers by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation or other notice of an extension of the closing date, the time specified for receipt of offers will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(5) Offers may be withdrawn by written notice received at any time before the exact time set for receipt of offers. Oral offers in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile offers, offers may be withdrawn via facsimile received at any time before the exact time set for receipt of offers, subject to the conditions specified in the solicitation concerning facsimile offers. An offer may be withdrawn in person by an offeror or its authorized representative if, before the exact time set for receipt of offers, the identity of the person requesting withdrawal is established and the person signs a receipt for the offer.

(g) Contract award (not applicable to Invitation for Bids). The Government intends to evaluate offers and award a contract without discussions with offerors. Therefore, the offeror's initial offer should contain the offeror's best terms from a price and technical standpoint. However, the Government reserves the right to conduct discussions if later determined by the Contracting Officer to be necessary. The Government may reject any or all offers if such action is in the public interest; accept other than the lowest offer; and waive informalities and minor irregularities in offers received.

(h) Multiple awards. The Government may accept any item or group of items of an offer, unless the offeror qualifies the offer by specific limitations. Unless otherwise provided in the Schedule, offers may not be submitted for quantities less than those specified. The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit prices offered, unless the offeror specifies otherwise in the offer.

(i) Availability of requirements documents cited in the solicitation. (1) The Index of Federal Specifications, Standards and Commercial Item Descriptions and the documents listed in it may be obtained from the General Services Administration, Federal Supply Service Bureau, Specifications Section, Suite 8100, 470 L'Enfant Plaza, SW, Washington, DC 20407 ((202) 619-8925).

(2) The DOD Index of Specifications and Standards (DODISS) and documents listed in it may be obtained from the Standardization Documents Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094 (telephone (215) 697-2569).

(i) Availability of requirements documents cited in the solicitation. (1)(i) The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29, and copies of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained for a fee by submitting a request to--GSA Federal Supply Service Specifications Section, Suite 8100, 470 East L'Enfant Plaza, SW, Washington, DC 20407, Telephone (202) 619-8925, Facsimile (202) 619-8978.

(ii) If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (i)(1)(i) of this provision. Additional copies will be issued for a fee.

(2) The DoD Index of Specifications and Standards (DoDISS) and documents listed in it may be obtained from the--Department of Defense Single Stock Point (DoDSSP), Building 4, Section D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Telephone (215) 697-2667/2179, Facsimile (215) 697-1462.

(i) Automatic distribution may be obtained on a subscription basis.

(ii) Order forms, pricing information, and customer support information may be obtained--

(A) By telephone at (215) 697-2667/2179; or

(B) Through the DoDSSP Internet site at <http://assist.daps.mil>.

(3) Nongovernment (voluntary) standards must be obtained from the organization responsible for their preparation, publication, or maintenance.

(j) Data Universal Numbering System (DUNS) Number. (Applies to offers exceeding \$25,000.) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" followed by the DUNS number that identifies the offeror's name and address. If the offeror does not have a DUNS number, it should contact Dun and Bradstreet to obtain one at no charge. An offeror within the United States may call 1-800-333-0505. The offeror may obtain more information regarding the DUNS number, including locations of local Dun and Bradstreet Information Services offices for offerors located outside the United States, from the Internet home page at <http://www.customerservice@dnb.com/>. If an offeror is unable to locate a local service center, it may send an e-mail to Dun and Bradstreet at globalinfo@mail.dnb.com.

(End of provision)

52.212-2 EVALUATION--COMMERCIAL ITEMS (JAN 1999)

(a) The Government will award a contract resulting from this solicitation to the responsible offeror whose offer conforming to the solicitation will be most advantageous to the Government, price and other factors considered. The following factors shall be used to evaluate offers:

(1) Technical.

(a) Disconnect Switch Manufacturing Details. Proposals identifying the correct number and configurations of switches to be supplied and meeting specification requirements for the following nameplate values will receive favorable evaluations:

Rated Maximum Voltage, kV
 Basic Impulse Insulation Level, kV Crest
 Continuous Current Rating, Amperes, rms
 Momentary Asymmetrical Current Rating, kA, rms
 Three second current rating
 Grounding switch making current, kA, rms (as applicable)
 Electric release grounding switch operating time, maximum, sec (as

applicable)

(b) Disconnect Switch Installation Plans and Schedule. Offerors identifying detailed installation plans with expedited delivery and installation schedules meeting specification requirements will receive favorable evaluations

(2) Past Performance.

(a) Previous switches furnished. Offerors demonstrating a minimum of 5 years experience in the design, construction, assembly, of high voltage air switches equal to and larger than that required by this contract will receive favorable evaluations. Offerors are required to submit information and references for their three most recent projects of similar size and scope. The following information for each project should be included in this submittal: project name & location; contract number & cumulative amount; primary reference name, job title, address, & phone number; alternate reference name, job title, address, & phone number; and project narrative. Proposals identifying similar projects with positive recommendations will receive favorable evaluations.

(b) Previous switches installed. Offerors demonstrating a minimum of 5 years experience in the installation and testing of high voltage air switches equal to and larger than that required by this contract will receive favorable evaluations. Offerors are required to submit information and references for recent installation work of their three most recent projects of similar size and scope. The following information for each project should be included in this submittal: project name & location; contract number & cumulative amount; primary reference name, job title, address, & phone number; alternate reference name, job title, address, & phone number; and project narrative. Proposals identifying similar projects with positive recommendations will receive favorable evaluations.

(3) Price. Offerors demonstrating a low total bid price will receive a favorable evaluation

Technical and past performance, when combined, are equal

(b) Options. The Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. The Government may determine that an offer is unacceptable if the option prices are significantly unbalanced. Evaluation of options shall not obligate the Government to exercise the option(s).

(c) A written notice of award or acceptance of an offer, mailed or otherwise furnished to the successful offeror within the time for acceptance specified in the offer, shall result in a binding contract without further action by either party. Before the offer's specified expiration time, the Government may accept an

offer (or part of an offer), whether or not there are negotiations after its receipt, unless a written notice of withdrawal is received before award.

(End of clause)

52.212-4 CONTRACT TERMS AND CONDITIONS-- COMMERCIAL ITEMS (FEB 2002)

(a) Inspection/Acceptance. The Contractor shall only tender for acceptance those items that conform to the requirements of this contract. The Government reserves the right to inspect or test any supplies or services that have been tendered for acceptance. The Government may require repair or replacement of nonconforming supplies or reperformance of nonconforming services at no increase in contract price. The Government must exercise its post-acceptance rights (1) within a reasonable time after the defect was discovered or should have been discovered; and (2) before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

(b) Assignment. The Contractor or its assignee may assign its rights to receive payment due as a result of performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency in accordance with the Assignment of Claims Act (31 U.S.C. 3727). However, when a third party makes payment (e.g., use of the Governmentwide commercial purchase card), the Contractor may not assign its rights to receive payment under this contract.

(c) Changes. Changes in the terms and conditions of this contract may be made only by written agreement of the parties.

(d) Disputes. This contract is subject to the Contract Disputes Act of 1978, as amended (41 U.S.C. 601-613). Failure of the parties to this contract to reach agreement on any request for equitable adjustment, claim, appeal or action arising under or relating to this contract shall be a dispute to be resolved in accordance with the clause at FAR 52.233-1, Disputes, which is incorporated herein by reference. The Contractor shall proceed diligently with performance of this contract, pending final resolution of any dispute arising under the contract.

(e) Definitions. The clause at FAR 52.202-1, Definitions, is incorporated herein by reference.

(f) Excusable delays. The Contractor shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of the Contractor and without its fault or negligence such as, acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. The Contractor shall notify the Contracting Officer in writing as soon as it is reasonably possible after the commencement or any excusable delay, setting forth the full particulars in connection therewith, shall remedy such occurrence with all reasonable dispatch and shall promptly give written notice to the Contracting Officer of the cessation of such occurrence.

(g) Invoice. (1) The Contractor shall submit an original invoice and three copies (or electronic invoice, if authorized) to the address designated in the contract to receive invoices. An invoice must include--

(i) Name and address of the Contractor;

(ii) Invoice date and number;

(iii) Contract number, contract line item number and, if applicable, the order number;

(iv) Description, quantity, unit of measure, unit price and extended price of the items delivered;

(v) Shipping number and date of shipment, including the bill of lading number and weight of shipment if shipped on Government bill of lading;

(vi) Terms of any discount for prompt payment offered;

(vii) Name and address of official to whom payment is to be sent;

(viii) Name, title, and phone number of person to notify in event of defective invoice; and

(ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(x) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision, contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration, or 52.232-34, Payment by Electronic Funds Transfer--Other Than Central Contractor Registration), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(2) Invoices will be handled in accordance with the Prompt Payment Act (31 U.S.C. 3903) and Office of Management and Budget (OMB) prompt payment regulations at 5 CFR part 1315.

(h) Patent indemnity. The Contractor shall indemnify the Government and its officers, employees and agents against liability, including costs, for actual or alleged direct or contributory infringement of, or inducement to infringe, any United States or foreign patent, trademark or copyright, arising out of the performance of this contract, provided the Contractor is reasonably notified of such claims and proceedings.

(i) Payment. Payment shall be made for items accepted by the Government that have been delivered to the delivery destinations set forth in this contract. The Government will make payment in accordance with the Prompt Payment Act (31 U.S.C. 3903) and OMB prompt payment regulations at 5 CFR part 1315. If the Government makes payment by Electronic Funds Transfer (EFT), see 52.212-5(b) for the appropriate EFT clause. In connection with any discount offered for early payment, time shall be computed from the date of the invoice. For the purpose of computing the discount earned, payment shall be considered to have been made on the date which appears on the payment check or the specified payment date if an electronic funds transfer payment is made.

(j) Risk of loss. Unless the contract specifically provides otherwise, risk of loss or damage to the supplies provided under this contract shall remain with the Contractor until, and shall pass to the Government upon:

(1) Delivery of the supplies to a carrier, if transportation is f.o.b. origin; or

(2) Delivery of the supplies to the Government at the destination specified in the contract, if transportation is f.o.b. destination.

(k) Taxes. The contract price includes all applicable Federal, State, and local taxes and duties.

(l) Termination for the Government's convenience. The Government reserves the right to terminate this contract, or any part hereof, for its sole convenience. In the event of such termination, the Contractor shall immediately stop all work hereunder and shall immediately cause any and all of its suppliers and subcontractors to cease work. Subject to the terms of this contract, the Contractor shall be paid a percentage of the contract price reflecting the percentage of the work performed prior to the notice of termination, plus reasonable charges the Contractor can demonstrate to the satisfaction of the Government using its standard record keeping system, have resulted from the termination. The Contractor shall not be required to comply with the cost accounting standards or contract cost principles for this purpose. This paragraph does not give the Government any right to audit the Contractor's records. The Contractor shall not be paid for any work performed or costs incurred which reasonably could have been avoided.

(m) Termination for cause. The Government may terminate this contract, or any part hereof, for cause in the event of any default by the Contractor, or if the Contractor fails to comply with any contract terms and conditions, or fails to provide the Government, upon request, with adequate assurances of future performance. In the event of termination for cause, the Government shall not be liable to the Contractor for any amount for supplies or services not accepted, and the Contractor shall be liable to the Government for any and all rights and remedies provided by law. If it is determined that the Government improperly terminated this contract for default, such termination shall be deemed a termination for convenience.

(n) Title. Unless specified elsewhere in this contract, title to items furnished under this contract shall pass to the Government upon acceptance, regardless of when or where the Government takes physical possession.

(o) Warranty. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

(p) Limitation of liability. Except as otherwise provided by an express or implied warranty, the Contractor will not be liable to the Government for consequential damages resulting from any defect or deficiencies in accepted items.

(q) Other compliances. The Contractor shall comply with all applicable Federal, State and local laws, executive orders, rules and regulations applicable to its performance under this contract.

(r) Compliance with laws unique to Government contracts. The Contractor agrees to comply with 31 U.S.C. 1352 relating to limitations on the use of appropriated funds to influence certain Federal contracts; 18 U.S.C. 431 relating to officials not to benefit; 40 U.S.C. 327, et seq., Contract Work Hours and Safety Standards Act; 41 U.S.C. 51-58, Anti-Kickback Act of 1986; 41 U.S.C. 265 and 10 U.S.C. 2409 relating to whistleblower protections; 49 U.S.C. 40118, Fly American; and 41 U.S.C. 423 relating to procurement integrity.

(s) Order of precedence. Any inconsistencies in this solicitation or contract shall be resolved by giving precedence in the following order: (1) the schedule of supplies/services; (2) the Assignments, Disputes, Payments, Invoice, Other Compliances, and Compliance with Laws Unique to Government Contracts paragraphs of this clause; (3) the clause at 52.212-5; (4) addenda to this solicitation or contract, including any license agreements for computer software; (5) solicitation provisions if this is a solicitation; (6) other paragraphs of this clause; (7) the Standard Form 1449; (8) other documents, exhibits, and attachments; and (9) the specification.

(End of clause)

52.212-5 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS--COMMERCIAL ITEMS (DEC 2001)

(a) The Contractor shall comply with the following FAR clauses, which are incorporated in this contract by reference, to implement provisions of law or executive orders applicable to acquisitions of commercial items:

(1) 52.222-3, Convict Labor (E.O. 11755).

(2) 52.233-3, Protest after Award (31 U.S.C. 3553).

(b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items or components:

(Contracting Officer shall check as appropriate.)

___ (1) 52.203-6, Restrictions on Subcontractor Sales to the Government, with Alternate I (41 U.S.C. 253g and 10 U.S.C. 2402).

___ (2) 52.219-3, Notice of HUBZone Small Business Set-Aside (Jan 1999).

- ___ (3) 52.219-4, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (Jan 1999) (if the offeror elects to waive the preference, it shall so indicate in its offer).
- ___ (4) (i) 52.219-5, Very Small Business Set-Aside (Pub. L. 103-403, section 304, Small Business Reauthorization and Amendments Act of 1994).
- ___ (ii) Alternate I to 52.219-5.
- ___ (iii) Alternate II to 52.219-5.
- ___ (5) 52.219-8, Utilization of Small Business Concerns (15 U.S.C. 637 (d)(2) and (3)).
- ___ (6) 52.219-9, Small Business Subcontracting Plan (15 U.S.C. 637 (d)(4)).
- ___ (7) 52.219-14, Limitations on Subcontracting (15 U.S.C. 637(a)(14)).
- ___ (8)(i) 52.219-23, Notice of Price Evaluation Adjustment for Small Disadvantaged Concerns (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323) (if the offeror elects to waive the adjustment, it shall so indicate in its offer).
- ___ (ii) Alternate I of 52.219-23.
- ___ (9) 52.219-25, Small Disadvantaged Business Participation Program--Disadvantaged Status and Reporting (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323).
- ___ (10) 52.219-26, Small Disadvantaged Business Participation Program--Incentive Subcontracting (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323).
- _√_ (11) 52.222-21, Prohibition of Segregated Facilities (Feb 1999).
- _√_ (12) 52.222-26, Equal Opportunity (E.O. 11246).
- _√_ (13) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans (38 U.S.C. 4212).
- _√_ (14) 52.222-36, Affirmative Action for Workers with Disabilities (29 U.S.C. 793).
- _√_ (15) 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans (38 U.S.C. 4212).
- _√_ (16) 52.222-19, Child Labor--Cooperation with Authorities and Remedies (E.O. 13126).
- ___ (17)(i) 52.223-9, Estimate of Percentage of Recovered Material Content for EPA-Designated Products (42 U.S.C. 6962(c)(3)(A)(ii)).
- ___ (ii) Alternate I of 52.223-9 (42 U.S.C. 6962(i)(2)(C)).
- ___ (18) 52.225-1, Buy American Act--Balance of Payments Program--Supplies (41 U.S.C. 10a-10d).
- ___ (19)(i) 52.225-3, Buy American Act--North American Free Trade Agreement--Israeli Trade Act--Balance of Payments Program (41 U.S.C. 10a-10d, 19 U.S.C. 3301 note, 19 U.S.C. 2112 note).
- ___ (ii) Alternate I of 52.225-3.

___ (iii) Alternate II of 52.225-3.

___ (20) 52.225-5, Trade Agreements (19 U.S.C. 2501, et seq., 19 U.S.C. 3301 note).

___ (21) 52.225-13, Restriction on Certain Foreign Purchases (E.O. 12722, 12724, 13059, 13067, 13121, and 13129).

___ (22) 52.225-15, Sanctioned European Union Country End Products (E.O. 12849).

___ (23) 52.225-16, Sanctioned European Union Country Services (E.O.12849).

✓ (24) 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration (31 U.S.C. 3332).

___ (25) 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration (31 U.S.C. 3332).

___ (26) 52.232-36, Payment by Third Party (31 U.S.C. 3332).

___ (27) 52.239-1, Privacy or Security Safeguards (5 U.S.C. 552a).

___ (28) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (46 U.S.C. 1241).

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, which the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or executive orders applicable to acquisitions of commercial items or components:

(Contracting Officer check as appropriate.)

___ (1) 52.222-41, Service Contract Act of 1965, As amended (41 U.S.C. 351, et. seq.).

___ (2) 52.222-42, Statement of Equivalent Rates for Federal Hires (29 U.S.C. 206 and 41 U.S.C. 351, et. seq.).

___ (3) 52.222-43, Fair Labor Standards Act and Service Contract Act -- Price Adjustment (Multiple Year and Option Contracts) (29 U.S.C.206 and 41 U.S.C. 351, et seq.).

___ (4) 52.222-44, Fair Labor Standards Act and Service Contract Act - Price Adjustment (29 U.S.C. 206 and 41 U.S.C. 351, et seq.).

___ (5) 52.222-47, SCA Minimum Wages and Fringe Benefits Applicable to Successor Contract Pursuant to Predecessor Contractor Collective Bargaining Agreement (CBA) (41 U.S.C. 351, et seq.).

(d) Comptroller General Examination of Record. The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, and does not contain the clause at 52.215-2, Audit and Records--Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR Subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made

available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c) or (d) of this clause, the Contractor is not required to include any FAR clause, other than those listed below (and as may be required by an addenda to this paragraph to establish the reasonableness of prices under Part 15), in a subcontract for commercial items or commercial components--

(1) 52.222-26, Equal Opportunity (E.O. 11246);

(2) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans (38 U.S.C. 4212);

(3) 52.222-36, Affirmative Action for Workers with Disabilities (29 U.S.C. 793);

(4) 52.247-64, Preference for Privately-Owned U.S.- Flag Commercial Vessels (46 U.S.C. 1241)(flow down not required for subcontracts awarded beginning May 1, 1996), and

(5) 52.222-41, Service Contract Act of 1965, As Amended (41 U.S.C. 351, et seq.).

(End of clause)

52.222-7 WITHHOLDING OF FUNDS (FEB 1988)

The Contracting Officer shall, upon his or her own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

52.222-8 PAYROLLS AND BASIC RECORDS (FEB 1988)

(a) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under paragraph (d) of the clause entitled Davis-Bacon Act, that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees

under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b)(1) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify--

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR Part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b)(2) of this clause.

(4) The falsification of any of the certifications in this clause may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(c) The Contractor or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by the Contracting Officer or authorized representatives of the Contracting Officer or the Department of Labor. The Contractor or subcontractor shall permit the Contracting Officer or representatives of the Contracting Officer or the Department of Labor to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit required records or to make them available, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

52.222-11 SUBCONTRACTS (LABOR STANDARDS (FEB 1988))

(a) The Contractor or subcontractor shall insert in any subcontracts the clauses entitled Davis-Bacon Act, Contract Work Hours and Safety Standards Act-Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Withholding of Funds, Subcontracts (Labor Standards), Contract Termination-Debarment, Disputes Concerning Labor Standards, Compliance with Davis-Bacon and Related Act Regulations, and Certification of Eligibility, and such other clauses as the Contracting Officer may, by appropriate instructions, require, and also a clause requiring subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses cited in this paragraph.

(b)(1) Within 14 days after award of the contract, the Contractor shall deliver to the Contracting Officer a

completed Statement and Acknowledgment Form (SF 1413) for each subcontract, including the subcontractor's signed and dated acknowledgment that the clauses set forth in paragraph (a) of this clause have been included in the subcontract.

(2) Within 14 days after the award of any subsequently awarded subcontract the Contractor shall deliver to the Contracting Officer an updated completed SF 1413 for such additional subcontract.

52.223-5 POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION (APR 1998)

(a) Executive Order 12856 of August 3, 1993, requires Federal facilities to comply with the provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)(42 U.S.C. 11001-11050) and the Pollution Prevention Act of 1990 (PPA)(42 U.S.C. 13101-13109).

(b) The Contractor shall provide all information needed by the Federal facility to comply with the emergency planning reporting requirements of Section 302 of EPCRA; the emergency notice requirements of Section 304 of EPCRA; the list of Material Safety Data Sheets required by Section 311 of EPCRA; the emergency and hazardous chemical inventory forms of Section 312 of EPCRA; the toxic chemical release inventory of Section 313 of EPCRA, which includes the reduction and recycling information required by Section 6607 of PPA; and the toxic chemical reduction goals requirements of Section 3-302 of Executive Order 12856.

52.228-5 INSURANCE--WORK ON A GOVERNMENT INSTALLATION (JAN 1997)

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.

(b) Before commencing work under this contract, the Contractor shall notify the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contract is to be performed prescribe, or (2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

(End of clause)

52.236-2 DIFFERING SITE CONDITIONS (APR 1984)

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of

(1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or

(2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

52.236-3 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984)

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to

(1) conditions bearing upon transportation, disposal, handling, and storage of materials;

(2) the availability of labor, water, electric power, and roads;

(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site;

(4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Government, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

(b) The Government assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Government. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

52.236-5 MATERIAL AND WORKMANSHIP (APR 1984)

(a) All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. When directed to do so, the Contractor shall submit samples for approval at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of

subsequent rejection.

(c) All work under this contract shall be performed in a skillful and workmanlike manner. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee the Contracting Officer deems incompetent, careless, or otherwise objectionable.

52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984)

At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the worksite a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

52.236-7 PERMITS AND RESPONSIBILITIES (NOV 1991)

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

52.236-8 OTHER CONTRACTS (APR 1984)

The Government may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with Government employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by Government employees.

52.236-10 OPERATIONS AND STORAGE AREAS (APR 1984)

(a) The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

(b) Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(c) The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

52.236-11 USE AND POSSESSION PRIOR TO COMPLETION (APR 1984)

(a) The Government shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list

of items of work remaining to be performed or corrected on those portions of the work that the Government intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Government's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the Government has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the work resulting from the Government's possession or use, notwithstanding the terms of the clause in this contract entitled "Permits and Responsibilities." If prior possession or use by the Government delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

52.236-12 CLEANING UP (APR 1984)

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

52.236-13 ACCIDENT PREVENTION (NOV 1991)

(a) The Contractor shall provide and maintain work environments and procedures which will

(1) safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities;

(2) avoid interruptions of Government operations and delays in project completion dates; and

(3) control costs in the performance of this contract.

(b) For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall-

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910; and

(3) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

(c) If this contract is for construction or dismantling, demolition or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

(d) Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the Contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the Contractor or the Contractor's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

(e) The Contractor shall insert this clause, including this paragraph (e), with appropriate changes in the designation of the parties, in subcontracts.

52.236-14 AVAILABILITY AND USE OF UTILITY SERVICES (APR 1984)

(a) The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by the Government, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984)

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as directed by the Contracting Officer, and upon doing so shall immediately deliver three copies of the annotated schedule to the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

52.236-17 LAYOUT OF WORK (APR 1984)

The Contractor shall lay out its work from Government established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish,

at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997)

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by," or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown," "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed".

(d) Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements, and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Government's reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and one set will be returned to the

Contractor.

52.236-26 PRECONSTRUCTION CONFERENCE (FEB 1995)

If the Contracting Officer decides to conduct a preconstruction conference, the successful offeror will be notified and will be required to attend. The Contracting Officer's notification will include specific details regarding the date, time, and location of the conference, any need for attendance by subcontractors, and information regarding the items to be discussed.

52.242-14 SUSPENSION OF WORK (APR 1984)

(a) The Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract. (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

52.243-4 CHANGES (AUG 1987)

(a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes--

- (1) In the specifications (including drawings and designs);
- (2) In the method or manner of performance of the work;
- (3) In the Government-furnished facilities, equipment, materials, services, or site; or
- (4) Directing acceleration in the performance of the work.

(b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating

- (1) the date, circumstances, and source of the order and
- (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after

(1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Contracting Officer a written statement describing the general nature and amount of the proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.

(f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

52.245-2 GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS) (DEC 1989)

(a) Government-furnished property. (1) The Government shall deliver to the Contractor, for use in connection with and under the terms of this contract, the Government-furnished property described in the Schedule or specifications together with any related data and information that the Contractor may request and is reasonably required for the intended use of the property (hereinafter referred to as "Government-furnished property").

(2) The delivery or performance dates for this contract are based upon the expectation that Government-furnished property suitable for use (except for property furnished "as is") will be delivered to the Contractor at the times stated in the Schedule or, if not so stated, in sufficient time to enable the Contractor to meet the contract's delivery or performance dates.

(3) If Government-furnished property is received by the Contractor in a condition not suitable for the intended use, the Contractor shall, upon receipt of it, notify the Contracting Officer, detailing the facts, and, as directed by the Contracting Officer and at Government expense, either repair, modify, return, or otherwise dispose of the property. After completing the directed action and upon written request of the Contractor, the Contracting Officer shall make an equitable adjustment as provided in paragraph (h) of this clause.

(4) If Government-furnished property is not delivered to the Contractor by the required time, the Contracting Officer shall, upon the Contractor's timely written request, make a determination of the delay, if any, caused the Contractor and shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(b) Changes in Government-furnished property. (1) The Contracting Officer may, by written notice, (i) decrease the Government-furnished property provided or to be provided under this contract, or (ii) substitute other Government-furnished property for the property to be provided by the Government, or to be acquired by the Contractor for the Government, under this contract. The Contractor shall promptly take such action as the Contracting Officer may direct regarding the removal, shipment, or disposal of the property covered by such notice.

(2) Upon the Contractor's written request, the Contracting Officer shall make an equitable adjustment to the contract in accordance with paragraph (h) of this clause, if the Government has agreed in the Schedule to make the property available for performing this contract and there is any--

(i) Decrease or substitution in this property pursuant to subparagraph (b)(1) of this clause; or

(ii) Withdrawal of authority to use this property, if provided under any other contract or lease.

(c) Title in Government property. (1) The Government shall retain title to all Government-furnished property.

(2) All Government-furnished property and all property acquired by the Contractor, title to which vests in the Government under this paragraph (collectively referred to as "Government property"), are subject to the provisions of this clause. However, special tooling accountable to this contract is subject to the provisions of the Special Tooling clause and is not subject to the provisions of this clause. Title to Government property shall not be affected by its incorporation into or attachment to any property not owned by the Government, nor shall Government property become a fixture or lose its identity as personal property by being attached to any real property.

(3) Title to each item of facilities and special test equipment acquired by the Contractor for the Government under this contract shall pass to and vest in the Government when its use in performing this contract commences or when the Government has paid for it, whichever is earlier, whether or not title previously vested in the Government.

(4) If this contract contains a provision directing the Contractor to purchase material for which the Government will reimburse the Contractor as a direct item of cost under this contract--

(i) Title to material purchased from a vendor shall pass to and vest in the Government upon the vendor's delivery of such material; and

(ii) Title to all other material shall pass to and vest in the Government upon--

(A) Issuance of the material for use in contract performance;

(B) Commencement of processing of the material or its use in contract performance; or

(C) Reimbursement of the cost of the material by the Government, whichever occurs first.

(d) Use of Government property. The Government property shall be used only for performing this contract, unless otherwise provided in this contract or approved by the Contracting Officer.

(e) Property administration. (1) The Contractor shall be responsible and accountable for all Government property provided under this contract and shall comply with Federal Acquisition Regulation (FAR) Subpart 45.5, as in effect on the date of this contract.

(2) The Contractor shall establish and maintain a program for the use, maintenance, repair, protection, and preservation of Government property in accordance with sound industrial practice and the applicable provisions of Subpart 45.5 of the FAR.

(3) If damage occurs to Government property, the risk of which has been assumed by the Government under this contract, the Government shall replace the items or the Contractor shall make such repairs as the Government directs. However, if the Contractor cannot effect such repairs within the time required, the Contractor shall dispose of the property as directed by the Contracting Officer. When any property for which the Government is responsible is replaced or repaired, the Contracting Officer shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(4) The Contractor represents that the contract price does not include any amount for repairs or replacement for which the Government is responsible. Repair or replacement of property for which the Contractor is responsible shall be accomplished by the Contractor at its own expense.

(f) Access. The Government and all its designees shall have access at all reasonable times to the premises in which any Government property is located for the purpose of inspecting the Government property.

(g) Risk of loss. Unless otherwise provided in this contract, the Contractor assumes the risk of, and shall be responsible for, any loss or destruction of, or damage to, Government property upon its delivery to the Contractor or upon passage of title to the Government under paragraph (c) of this clause. However, the Contractor is not

responsible for reasonable wear and tear to Government property or for Government property properly consumed in performing this contract.

(h) Equitable adjustment. When this clause specifies an equitable adjustment, it shall be made to any affected contract provision in accordance with the procedures of the Changes clause. When appropriate, the Contracting Officer may initiate an equitable adjustment in favor of the Government. The right to an equitable adjustment shall be the Contractor's exclusive remedy. The Government shall not be liable to suit for breach of contract for--

(1) Any delay in delivery of Government-furnished property;

(2) Delivery of Government-furnished property in a condition not suitable for its intended use;

(3) A decrease in or substitution of Government-furnished property; or

(4) Failure to repair or replace Government property for which the Government is responsible.

(i) Final accounting and disposition of Government property. Upon completing this contract, or at such earlier dates as may be fixed by the Contracting Officer, the Contractor shall submit, in a form acceptable to the Contracting Officer, inventory schedules covering all items of Government property (including any resulting scrap) not consumed in performing this contract or delivered to the Government. The Contractor shall prepare for shipment, deliver f.o.b. origin, or dispose of the Government property as may be directed or authorized by the Contracting Officer. The net proceeds of any such disposal shall be credited to the contract price or shall be paid to the Government as the Contracting Officer directs.

(j) Abandonment and restoration of Contractor's premises. Unless otherwise provided herein, the Government--

(1) May abandon any Government property in place, at which time all obligations of the Government regarding such abandoned property shall cease; and

(2) Has no obligation to restore or rehabilitate the Contractor's premises under any circumstances (e.g., abandonment, disposition upon completion of need, or upon contract completion). However, if the Government-furnished property (listed in the Schedule or specifications) is withdrawn or is unsuitable for the intended use, or if other Government property is substituted, then the equitable adjustment under paragraph (h) of this clause may properly include restoration or rehabilitation costs.

(k) Communications. All communications under this clause shall be in writing.

(l) Overseas contracts. If this contract is to be performed outside of the United States of America, its territories, or possessions, the words "Government" and "Government-furnished" (wherever they appear in this clause) shall be construed as "United States Government" and "United States Government-furnished," respectively.

(End of clause)

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

(c) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

(e) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(3) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(h) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

(j) This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

(End of clause)

(a) General. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any instant contract savings realized from accepted VECP's, in accordance with paragraph (f) below.

(b) Definitions. "Collateral costs," as used in this clause, means agency costs of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Government costs," as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistic support. The term does not include the normal administrative costs of processing the VECP.

"Instant contract savings," as used in this clause, means the estimated reduction in Contractor cost of performance resulting from acceptance of the VECP, minus allowable Contractor's development and implementation costs, including subcontractors' development and implementation costs (see paragraph (h) below).

"Value engineering change proposal (VECP)" means a proposal that--

- (1) Requires a change to this, the instant contract, to implement; and
- (2) Results in reducing the contract price or estimated cost without impairing essential functions or characteristics; provided, that it does not involve a change--

(i) In deliverable end item quantities only; or

(ii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (7) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

- (1) A description of the difference between the existing contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance.
- (2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.
- (3) A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (h) below.
- (4) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.
- (5) A prediction of any effects the proposed change would have on collateral costs to the agency.

(6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) Submission. The Contractor shall submit VECP's to the Resident Engineer at the worksite, with a copy to the Contracting Officer.

(e) Government action. (1) The Contracting Officer shall notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer shall notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

(2) If the VECP is not accepted, the Contracting Officer shall notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

(3) Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause. The Contracting Officer may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The decision to accept or reject all or part of any VECP is a unilateral decision made solely at the discretion of the Contracting Officer.

(f) Sharing.

(1) Rates. The Government's share of savings is determined by subtracting Government costs from instant contract savings and multiplying the result by (i) 45 percent for fixed-price contracts or (ii) 75 percent for cost-reimbursement contracts.

(2) Payment. Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a modification to this contract to--

(i) Accept the VECP;

(ii) Reduce the contract price or estimated cost by the amount of instant contract savings; and

(iii) Provide the Contractor's share of savings by adding the amount calculated to the contract price or fee.

(g) Subcontracts. The Contractor shall include an appropriate value engineering clause in any subcontract of \$50,000 or more and may include one in subcontracts of lesser value. In computing any adjustment in this contract's price under paragraph (f) above, the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs clearly resulting from a VECP accepted by the Government under this contract, but shall exclude any value engineering incentive payments to a subcontractor. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that these payments shall not reduce the Government's share of the savings resulting from the VECP.

(h) Data. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

"These data, furnished under the Value Engineering--Construction clause of contract, shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the

Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations."

If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in Part 27 of the Federal Acquisition Regulation.)

(End of clause)

252.201-7000 CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991)

(a) "Definition. Contracting officer's representative" means an individual designated in accordance with subsection 201.602-2 of the Defense Federal Acquisition Regulation Supplement and authorized in writing by the contracting officer to perform specific technical or administrative functions.

(b) If the Contracting Officer designates a contracting officer's representative (COR), the Contractor will receive a copy of the written designation. It will specify the extent of the COR's authority to act on behalf of the contracting officer. The COR is not authorized to make any commitments or changes that will affect price, quality, quantity, delivery, or any other term or condition of the contract.

(End of clause)

252.227-7033 RIGHTS IN SHOP DRAWINGS (APR 1966)

(a) Shop drawings for construction means drawings, submitted to the Government by the Construction Contractor, subcontractor or any lower-tier subcontractor pursuant to a construction contract, showing in detail (i) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of materials or equipment. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(b) This clause, including this paragraph (b), shall be included in all subcontracts hereunder at any tier.

252.236-7000 MODIFICATION PROPOSALS - PRICE BREAKDOWN. (DEC 1991)

(a) The Contractor shall furnish a price breakdown, itemized as required and within the time specified by the Contracting Officer, with any proposal for a contract modification.

(b) The price breakdown --

(1) Must include sufficient detail to permit an analysis of profit, and of all costs for --

(i) Material;

(ii) Labor;

(iii) Equipment;

(iv) Subcontracts; and

(v) Overhead; and

(2) Must cover all work involved in the modification, whether the work was deleted, added, or changed.

(c) The Contractor shall provide similar price breakdowns to support any amounts claimed for subcontracts.

(d) The Contractor's proposal shall include a justification for any time extension proposed.

252.236-7008 CONTRACT PRICES - BIDDING SCHEDULES. (DEC 1991)

(a) The Government's payment for the items listed in the Bidding Schedule shall constitute full compensation to the Contractor for --

- (1) Furnishing all plant, labor, equipment, appliances, and materials; and
- (2) Performing all operations required to complete the work in conformity with the drawings and specifications.

(b) The Contractor shall include in the prices for the items listed in the Bidding Schedule all costs for work in the specifications, whether or not specifically listed in the Bidding Schedule.

INSURANCE REQUIRED (Reference FAR 52.0228-5) (Workman Comp Not Included): (Local Provision)

In accordance with FAR 28.307-2, "Insurance Work on a Government Installation," the Contractor shall procure the following minimum insurance:

TYPE	AMOUNT
General Liability Insurance	\$500,000 per concurrence
Automobile Liability Insurance	\$200,000 per concurrence
Bodily Injury	\$500,000 per concurrence
Property Damage	\$20,000 per concurrence

EFAR 52.232-5001 CONTINUING CONTRACTS (MAR 1995)

(a) This is a continuing contract, as authorized by Section 10 of the River and Harbor Act of September 22, 1922 (33 U.S. Code 621). The payment of some portion of the contract price is dependent upon reservations of funds from future appropriations, and from future contribution to the project having one or more non-federal project sponsors. The responsibilities of the Government are limited by this clause notwithstanding any contrary provision of the "Payments to Contractor" clause or any other clause of this contract.

(b) The sum of \$250,000 has been reserved for this contract and is available for payments to the contractor during the current fiscal year. It is expected that Congress will make appropriations for future fiscal years from which additional funds together with funds provided by one or more non-federal project sponsors will be reserved for this contract.

(c) Failure to make payments in excess of the amount currently reserved, or that may be reserved from time to time, shall not entitle the contractor to a price adjustment under the terms of this contract except as specifically provided in paragraphs (f) and (I) below. No such failure shall constitute a breach of this contract, except that this provision shall not bar a breach-of-contract action if an amount finally determined to be due as a termination allowance remains unpaid for one year due solely to a failure to reserve sufficient additional funds therefore.

(d) The Government may at any time reserve additional funds for payments under the contract if there are funds available for such purpose. The contracting officer will promptly notify the contractor of any additional funds reserved for the contract by issuing an administrative modification to the contract.

(e) If earnings will be such that funds reserved for the contract will be exhausted before the end of any fiscal year, the contractor shall give written notice to the contracting officer of the estimated date of exhaustion and the amount of additional funds which will be needed to meet payments due or to become due under the contract

during that fiscal year. This notice shall be given not less than 45 nor more than 60 days prior to the estimated date of exhaustion.

(f) No payments will be made after exhaustion of funds except to the extent that additional funds are reserved for the contract. The contractor shall be entitled to simple interest on any payment that the contracting officer determines was actually earned under the terms of the contract and would have been made except for exhaustion of funds. Interest shall be computed from the time such payment would otherwise have been made until actually or constructively made, and shall be at the rate established by the Secretary of the Treasury pursuant to Public Law 92-41, 85 STAT 97, as in effect on the first day of the delay in such payment.

(g) Any suspension, delay, or interruption of work arising from exhaustion or anticipated exhaustion of funds shall not constitute a breach of this contract and shall not entitle the contractor to any price adjustment under the "Suspension of Work" clause or in any other manner under this contract.

(h) An equitable adjustment in performance time shall be made for any increase in the time required for performance of any part of the work arising from exhaustion of funds or the reasonable anticipation of exhaustion of funds.

(i) If, upon the expiration of sixty (60) days after the beginning of the fiscal year following an exhaustion of funds, the Government has failed to reserve sufficient additional funds to cover payments otherwise due, the contractor, by written notice delivered to the contracting officer at any time before such additional funds are reserved, may elect to treat his right to proceed with the work as having been terminated. Such a termination shall be considered a termination for the convenience of the Government.

(j) If at any time it becomes apparent that the funds reserved for any fiscal year are in excess of the funds required to meet all payments due or to become due the contractor because of work performed and to be performed under the contract during the fiscal year, the Government reserves the right, after notice to the contractor, to reduce said reservation by the amount of such excess.
(End of Clause)

SPECIFICATIONS & SITE OPERATIONS INFORMATION

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SPECIFICATIONS & SITE OPERATIONS INFORMATION

GENERAL

1.1 DESCRIPTION OF WORK

The Contractor shall furnish all labor, materials, plant, and equipment to perform in strict accordance with the detailed requirements of the schedule and technical specifications, the following activities at the Big Bend powerhouse:

- a. Remove and dispose of the existing high voltage outdoor air disconnect and grounding switches and all associated equipment.
- b. Furnish and Install new high voltage air switch replacement, including all line connections additional auxiliary switches, modifications, adjusting, electrical tests and functional tests..

1.2 SPECIFICATIONS

Technical specifications listed below cover the detailed requirements for the equipment and services listed in the below Schedule:

TITLE (See all in this document)

CONTRACTOR'S SITE OPERATIONS
 SOURCE OF REFERENCED PUBLICATIONS
 MEASUREMENT AND PAYMENT
 ENVIRONMENTAL PROTECTION
 ASBESTOS ABATEMENT WORK
 METALWORK FABRICATION, MACHINE WORK , MISCELLANEOUS PROVISION
 HIGH VOLTAGE AIR SWITCH REPLACEMENT

1.3 CHANGES IN SPECIFICATIONS AND DRAWINGS

The Government reserves the right to revise or amend the specifications and/or drawings prior to the date set for opening. Copies of such amendments will be furnished to all prospective quoters. If the revisions and amendments require material changes in quantities or prices quote, or both, the date set for opening quote may be extended to enable quoters the opportunity to revise their technical quoters. The amendment will include an announcement of the new date for opening quote.

1.4 DEFINITIONS

1.4.1 Directed, Required, Ordered, Designated, Prescribed

Wherever in the specifications or upon the drawings the words "directed," "required," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the "direction," "requirement," "order," "designation," or "prescription" of the Contracting Officer is intended and similarly the words "approved," "acceptable," "satisfactory," or words of like import shall mean "approved by," or "acceptable to," or "satisfactory to" the Contracting Officer unless otherwise expressly stated.

1.4.2 As Shown, As Indicated, As Detailed

Where "as shown," "as indicated," "as detailed," or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provided complete in-place," that is "furnished and installed." (FAR 52.236-21 (b and c).)

1.4.3 Contracting Officer (CO), Contracting Officer's Representative (COR)

Wherever in these specifications or upon the drawings the words "Contracting Officer" (CO) or "Contracting Officer's Representative" (COR), are used, it shall be understood to also mean "Government" unless otherwise expressly stated.

1.4.4 Government Quality Assurance Representative (GOAR)

Wherever in these specifications the word "GOAR" is used, it shall be understood to mean "Government Quality Assurance Representative," unless otherwise stated.

1.4.5 Weekend(s)

Wherever in these specifications the word "weekend(s)" is used, it shall be understood to mean "Saturday, Sunday and Federal Holidays," unless otherwise expressly stated.

1.4.6 Project

Wherever in these specifications the word "Project" is used, it shall be understood to mean "Big Bend Project".

CONTRACTOR'S SITE OPERATIONS

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CONTRACTOR'S SITE OPERATIONS

GENERAL

1.1 GENERAL INFORMATION

This section covers the general requirements applicable to specific Contractor's operations or equipment for work performed on site.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referenced to in the text by basic definition only.

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1926 (1992) Safety and Health Regulations for Construction

US ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (1996) Safety and Health Requirements Manual

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

B30.2 (1994) Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder Top Running Trolley Hoist)

US DEPARTMENT OF TRANSPORTATION

MUTCD (1988) Manual on Uniform Traffic Control Devices for Streets and Highways

1.3 SUBMITTALS

Submittals required by this section of the Technical Specifications shall be for Government approval (GA) or for information only (FIO), and shall be submitted as stated below in accordance with SECTION H. The time of submittal shall be in accordance with SECTION H, unless otherwise indicated below.

SD-01 Data

Supervisors Qualifications; GA

Qualifications and identification of Contractor's work supervisor(s), a minimum of 30 calendar days prior to the start of site work, para. 1.4.

Organizational Chart; FIO

Organization chart, a minimum of 30 calendar days prior to the start of site work, para. 1.5.1.

Employee Identification Procedure; GA

Procedure for identification and control of employees entering or leaving site, a minimum of 30 days prior to the start of site work, para. 1.5.2.

List of Employees; FIO

List of personnel working on the site, a minimum of 14 calendar days prior to the start of site work and updated weekly thereafter to reflect a current listing, para. 1.5.2.

Roadway Access Agreement; FIO

Roadway access agreement, a minimum of 14 calendar days from the date of signature, or before the use of the roadways begins, whichever is earliest, para. 1.6.2.

Contractors Vehicle Identification; GA

Method of identifying Contractor's vehicles, a minimum of 30 days prior to site work, para. 1.7.2.

Working Hours; GA

Working hours, shifts and days of the week to be worked, a minimum of 30 calendar days prior to the start of site work, para. 1.8.1 and 1.8.2.

Site Work Schedule; GA

Site work schedule featuring the major stages of the work, a minimum of 30 calendar days prior to the start of site work, para. 1.8.3

Dust and Fume Control; GA

Dust and fume control program, a minimum of 30 calendar days prior to performing on site work, para. 1.19.

Off-site Disposal Area; GA

Location of off-site disposal area and plan for disposal, a minimum of 30 calendar days prior to the commencement of site work, para. 1.23.

Signage; GA

Content and location of signage, a minimum of 30 calendar days, prior to performing on-site work, para. 1.24.

Access Equipment; GA

Any scaffolding, ladder, stairway, or other access schemes proposed, a minimum of 30 calendar days prior to their installation and use, para. 1.27.

Project Status; FIO

Project report giving project status and activities, once a week of on-site work, para. 1.28.

SD-08 Statements

Schedule Change Request; GA

Request to change schedule of regular work hours, etc., minimum 48 hours prior to change, para. 1.8.3.

Request for Drawings and Data; FIO

Request for copies of data and drawings, a minimum of 28 days in advance, para. 1.10.

Notification of Damaged Equipment; FIO

Notice of finding damaged equipment or other abnormal conditions of equipment or parts, immediately after discovery, para. 1.15.

1.4 SUPERVISOR(S)

At least one (1) full-time employee of the Contractor shall be available at the worksite anytime other Contractor or subcontractor personnel are working on the site to supervise and direct the work specified herein. Supervisor(s) shall be present at the site during erection and shall be responsible for providing complete and correct direction of all installation work, the initial starting, and all subsequent operation of the equipment until the field tests are completed. The supervisor(s) shall be responsible for following the Government's Safe Clearance Procedure, para. 1.11. The supervisor(s) shall initiate instructions for all actions necessary for the proper inspection, handling, assembly and testing of the equipment. The supervisor(s) shall keep a record of all measurements taken during erection and shall provide copies on request or on completion of installation of the equipment associated with each crane. The supervisor(s) shall keep all as-built drawings to current standards and provide copies upon completion of the work. The supervisor(s) shall be fluent in the spoken and written English language. The supervisor(s) shall have been engaged in similar crane work, as is specified herein, for a minimum of 3 years. Documentation of their experience shall be submitted.

1.5 CONTRACTOR'S GENERAL PERSONNEL

1.5.1 General

The Contractor shall submit a project organization chart reflecting at least those positions described herein and defining their work relationships, etc. All personnel employed by the Contractor shall be fully qualified in their respective fields to render the services necessary.

1.5.2 Identification of Contractor's Employees

The Contractor shall be responsible for furnishing employee identification and for requiring each employee at the powerhouse to display such identification as may be approved and directed by the Contracting Officer, unless otherwise specified below. All Contractor personnel, prior to engaging in work on project premises, shall be issued an identification card by the Contractor. The I.D. cards shall include the following information:

- Name of Contractor
- Name of Employee
- Birth date
- Height
- Weight
- Hair color
- Eye color
- Recent photo

All prescribed identifications shall be returned immediately to the Contractor upon release of any employee. The Contractor shall supply a complete listing of all personnel and their titles who will be working on the project. This listing shall be revised at a minimum of once weekly and revisions provided. When required, by the Contracting Officer, the Contractor shall obtain and submit fingerprints of all persons employed by it or to be employed at the powerhouse.

1.6 WORK AREAS AND ACCESS

1.6.1 Access Roads

No new access roads are required for this work. Any damage to existing roadways that are used for access purposes shall be repaired and the surface shall be restored to its "as found" condition.

1.6.2 Road Restrictions

The Contractor shall comply with any special requirements of the State, County, Local authorities and Corps of Engineers for use of existing roadways. These special requirements include, but are not limited to, traffic regulations and load limits. The Contractor is responsible for investigating and understanding these restrictions. No time extensions or cost claims will be allowed due to road restrictions. Any agreements negotiated with the State or County for road use will be furnished to the Government before use of roadways begin. Both lanes of roads shall not be blocked by the Contractor. If one lane is blocked the Contractor shall provide the necessary flaggers, based on the visibility, to control traffic.

1.6.3 Access by Government Personnel

Clear access shall be maintained for Government personnel and equipment through all work areas.

1.6.4 Contractor's Staging Area and Employee Access

The Contractor's staging area shall be restricted to the area designated by the Government. His job-site office may be in the staging area, as approved. The project areas off-limits to Contractor shall be all areas other than direct work areas. Power plant elevators and restrooms shall not be used by Contractor personnel. Salespersons or personnel seeking employment will not be permitted inside the powerhouse. Signs may be erected outside the powerhouse containing instructions for personnel seeking the Contractor. The content and location of the signs must be approved. The Contractor shall provide his own office space and administrative facilities and all temporary storage buildings. All temporary Contractor site facilities shall be disposed of before final acceptance of all work.

1.7 VEHICLES

1.7.1 Use of Private Vehicles

Private vehicles of the Contractor and Contractor's employees shall enter and leave the project from State Highway 47. Parking of private vehicles shall be restricted to the areas designated. Additional parking will be designated upon request, but may be located up to ½ mile from the powerhouse. Contractor shall maintain his designated parking areas.

1.7.2 Identification of Vehicles

All Contractor's vehicles shall display approved permanent identification of such size and color to allow Government personnel to identify the vehicle.

1.8 PROJECT SECURITY AND WORKING HOURS

1.8.1 General

The project is open to the public during normal working hours. A procedure shall be prepared and submitted for approval for the identification and control of employees entering or leaving the project during the hours of closure. The security of the Contractor's property and items furnished under this contract are the Contractor's responsibility, until accepted, whether stored inside or outside the powerhouse.

1.8.2 Working Hours

Arrangement and scheduling of working hours and crews shall be coordinated with the Government. The working hours of the project staff are 7:00 a.m. - 4:30 p.m., Monday through Thursday and 7:00 a.m. to 3:30 p.m. every other Friday with the alternate Friday off. Working hours which extend past 4:30 p.m. weekdays, on weekends, and Federal holidays or which are proposed to be different from that suggested above shall be coordinated and approved by the Contracting Officer 2 months in advance.

1.8.3 Site Work Schedule

A site work schedule shall be prepared and submitted. The schedule shall include major and minor work elements and stages of the work. These documents shall be updated and submitted to reflect the actual work elements and progress anticipated in the future.

1.9 SAFE CLEARANCE PROCEDURES

A Hazardous Energy Control (HEC) procedures are implemented for all the maintenance and construction activities on Corps property. These procedures are in accordance with OSHA regulation 29 CFR 1910.147, 1910.333, 1910.269 and USACE ER 385-1-31, The Control of Hazardous Energy (safe clearance). Any work performed at the Big Bend project will be performed under safe clearance. The contractor shall request clearance on a piece of equipment or system before any work may begin. The Corps will establish the limits of the clearance, tag and lock the equipment or systems. The Contractor will be required to institute their own safe clearance procedures in accordance with OSHA and USACE regulations, within the perimeter or the Corps clearance. The Hazardous Energy Control program at Big Bend does not have the capabilities to apply Personal Protective Grounds (PPG) on the 230kV bus. It shall be the responsibility of the Contractor to provide and install PPG using proper grounding equipment, techniques and procedures. These grounds will be added to the Corps' clearance for the purpose of tracking the application of these grounds. The Contractor's clearance shall not inhibit or interfere with the Corps operation of the plant. The clearances shall not be violated. Any violation of Hazardous Energy Control procedure (Safe Clearance Procedures) will be grounds for removal of the offender(s).

1.10 DRAWINGS AND MANUALS

Existing drawings and manuals that may be of value for the work will be available for viewing at the power plant during normal project day shift working hours following Contract award. Drawings and manuals shall not be removed from the office. However, one (1) copy of available technical data and drawings not included in the reference drawings will be made at no cost to the Contractor within 7 normal working days after the request for such copies has been made. The drawings and manuals are furnished for information only and the Government does not guarantee the drawings or manuals will match actual field conditions. Reference drawing deviations shall not be the basis for a contract claim.

1.11 EXISTING SANITATION FACILITIES

Government restroom facilities are not available to the Contractor personnel. Sanitation facilities shall be furnished and shall be in accordance with EM 385-1-1, and shall be located inside the powerhouse at approved locations.

1.12.2 Temporary Utility Connections

All utilities that are required for use in performance of the work under this contract shall be Contractor-furnished except as noted below:

a. Water. All reasonable amounts of non-potable water will be made available from existing outlets. The Contractor will be responsible for freeze proofing all accessed water sources.

b. Electricity. Electric power may be obtained from existing sources located at various locations near the work areas.

c. Compressed Air. Compressed air will not be available to the Contractor.

1.12.2 Temporary Utility Connections

All utilities provided by the Government shall be at no cost. Care shall be exercised in conserving all utilities. The contractor shall provide all necessary hoses, cords, couplings, plugs, GFI's and other appurtenances as required to connect to the system(s). All temporary connections shall be subject to approval. All electric power required outside the powerhouse shall be Contractor-furnished. The location of all power lines and all temporary connections

for electricity shall be coordinated with the GQAR. All temporary circuits and devices shall be provided, connected, and maintained and removed prior to final acceptance. Ground fault protection shall be provided for all circuits used, inside and outside, and shall be Contractor-furnished. The temporary panel shall conform to current NEC standards in EM 385-1-1.

1.12.3 Telephone

Designated project telephones will be made available for use by the Contractor. The telephones shall be utilized for official business only. Phone charge cards will be used for all Contractor long distance calls. The Contractor may use cellular phone service if available and functional.

1.13 CONTRACTOR'S EQUIPMENT AND MATERIAL

1.13.1 General

The planned method of transportation and operation of cranes and other heavy equipment to be used in the performance of this contract shall be submitted. This shall include the type, size, and loadings of equipment and the proposed transportation routes and work areas to be used on the project. Operation of heavy equipment adjacent to existing structures shall be avoided when possible.

1.13.2 Movement of Equipment and Material by the Contractor

The Contractor shall provide all cranes, rigging, lifts, operators, and other necessary means to move equipment or material as required to pursue and complete the work whether owned by the Government or by the Contractor, unless otherwise specifically mentioned. This includes but is not limited to the unloading and loading of equipment and material.

1.13.3 Area Lighting

The Contractor shall provide all lighting necessary to perform his work and to provide a safe work environment.

1.14 STORAGE OF EQUIPMENT AND MATERIALS

Indoor and outdoor storage of equipment and materials will be permitted only at designated storage areas in the immediate vicinity of the powerplant which will be coordinated with the Government Representative during the pre-work conference. A minimum access space of three feet shall be maintained between stored items and the existing powerhouse equipment. Due to high winds at the site, everything in the outside storage area(s) shall be securely tied down so it will not be blown into the switchyard.

1.15 DAMAGED EQUIPMENT OR ABNORMAL CONDITIONS

The Government shall be informed immediately upon finding any damaged equipment or other abnormal conditions involving additional work in which the Contractor believes he has no responsibility. The failure or abnormality shall not be disturbed until witnessed by the GQAR. Prior to proceeding further with work on the powerplant crane, the Contractor and the Government shall agree in writing as to the responsibility for the damage or abnormality.

1.16 PROTECTION OF MATERIAL AND WORK

All materials, supplies, tools, equipment and Government property (including all tools, equipment, and special devices supplied by the Contractor and to be turned over to the Government at the end of the Contract) shall at all times be protected and preserved in an approved manner and in accordance with the manufacturer's recommendations. If material, equipment, supplies, and work performed are not adequately protected, such property may be protected by the Government and the cost thereof will be charged to the Contractor or deducted from any payment due.

1.17 DISPOSAL OF ELECTRICAL AND MECHANICAL EQUIPMENT AND MISC. MATERIALS

Title to all materials and equipment to be disposed of, excepting salvage items and hazardous waste, is vested in the Contractor upon receipt of signed contract and such materials and equipment are designated scrap only as directed. The Government will not be responsible for the condition, loss or damage to such property after notice to proceed. The Contractor may retain these items in usable form and take possession of them providing that there is no subsequent cost or inconvenience to the Government. The Government does not guarantee that these items are complete or in working order, and the Contractor shall assume responsibility for any damages caused by their use immediately upon taking possession of them. Scrap materials shall be removed from the Government's property within 14 days. Scrap shall not be sold on the site.

1.18 PROTECTION AND RESTORATION OF EXISTING FACILITIES

All existing grounds, property and facilities shall be protected whether or not shown on the drawings. Upon completion of the work, all the existing grounds, property and facilities, not included as a portion of the work, shall be left in a condition equal to the original condition prior to the contract. Costs for repair and restoration of any facilities shall be considered to be incidental to and included in the contract price.

1.19 DUST CONTROL IN POWERHOUSE

All necessary measures shall be taken to effect maximum control of all dust and welding fumes created by operations under this contract. To the maximum extent possible, all dust and dirt shall be removed by vacuum cleaning. A proposed dust-control program shall be approved, in writing. Part of the required dust-control program shall include the following:

- a. Provision of exhaust ducts which shall discharge outside the powerhouse structure where mechanical ventilation is used.
- b. Furnishing and removing of oiled sawdust or other approved dust preventatives in areas which cannot be properly rendered free from excessive dusting by vacuum cleaning or other methods.
- c. Vacuum cleaning (or other acceptable method) of spaces within the powerhouse where dust accumulates
- d. Gasoline, propane or diesel-engine equipment, except propane-driven forklifts, may not be used inside the powerhouse. Air, electrical, or battery-driven equipment may be used inside the powerhouse. Forklifts shall have smooth tires.

The Contractor shall be responsible for the removal of all stains and residues, and the repair of damage to structures and equipment. Operating components of existing powerhouse equipment shall be protected by approved methods. Depending upon the Contractor's plant and equipment and methods of operation, additional provisions for satisfactory dust control will be required and shall be included in the proposed dust-control program. Decisions of the Government as to the adequacy and extent of the dust-control program and prosecution of the work shall be final. Powerhouse doors must be kept shut when not in use. The dust control in the powerhouse shall be considered as incidental to the work and no separate payment will be made therefore.

1.20 NOISE CONTROL

Noise control and noise levels shall conform to requirements set forth in the appropriate OSHA regulation and EM 385-1-1.

1.21 FIRE CONTROL

All fire fighting equipment, supplies, and personnel shall be supplied in accordance with EM-385-1-1. Delays due to fire caused by the Contractor will not be acceptable as the basis of a claim for additional compensation.

1.22 CARE OF DRAINS

Existing powerhouse floor drains including the unwatering drains and transformer cell drains shall not be used for disposal of any solid material and or any liquids other than clear water. Drains obstructed by the Contractor shall be cleaned by the Contractor. All costs incurred in the cleaning and clearing of plugged drains, shall be borne by the Contractor.

1.23 DAILY CLEANUP AND DISPOSAL

In conjunction with SECTION 01350 all debris resulting from the work, such as waste metalwork, packing cases, scrap lumber, oil and grease, and other debris shall be collected, removed, and disposed of off site at least once per shift. Disposal shall be in accordance with Federal, State and Local regulations. The location of the Contractor's off-site disposal area and a plan for safe disposal of material shall be approved. The Government's trash cans, dumpsters, etc. shall not be used. Liquid waste shall not be disposed of in powerhouse drains. All costs of removing debris shall be incidental to the work, and no separate payment will be made therefore. All temporary structures used by the Contractor in the course of the work shall leave the area looking "broom clean".

1.24 BARRICADES AND DANGER, DETOUR AND WARNING SIGNS

1.24.1 Barricades and Danger and Detour Signs

The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient red lights, danger signals, and detour and other signs; provide a sufficient number of watchmen; and take all necessary precautions for the protection of the work and the safety of the public. Roads, etc. closed to traffic shall be protected by effective barricades, and obstruction shall be continuously illuminated day and night. Suitable warning signs shall be illuminated by lanterns or flares day and night.

1.24.2 Warning Signs

Warning signs shall be erected 500 feet in advance of any place on the project where operations interfere with the use of a road by traffic. Warning signs shall conform to the standards established in Part IV of the "Manual on Uniform Traffic Control Devices for Streets and Highways," published by the U.S. Dept. of Transportation.

1.25 WORK BY THE GOVERNMENT CONCURRENT WITH CONTRACTOR WORK

The Government will limit interference with the Contractor's work to the maximum reasonable extent and the Government and Contractor shall coordinate as necessary.

1.26 COOPERATION WITH OTHERS

The Government will perform maintenance work and will make every effort to have the area clear. The Contractor shall cooperate with other Contractors and the Government in using the area.

1.27 SCAFFOLDING

Any scaffolding, platform, ladder, stairway, or other access schemes proposed to be used shall be submitted for approval, including type, layout, and connections. Approved anti-slip surface material shall be installed on scaffolding platforms. Scaffolding shall comply in every respect with EM 385-1-1.

1.28 PROJECT REPORTING

Weekly reports shall be submitted by the Contractor giving project status and activities information. An updated CPM should be included in this report, if appropriate. This report shall include a written summary, accompanied with detailed information relating to current status of procurement, construction, and delivery activities compared to both the current project schedules and the schedule submitted at the time of the Request for Technical Proposal.

1.29 WEEKLY MEETINGS

Once each week, while on site, a general meeting will be held between the Contractor and the Government. This meeting will be used to discuss progress in the last week and work planned in the up coming week. A meeting time and place shall be mutually agreed upon.

1.30 PERMITS AND RESPONSIBILITIES

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, County, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, workers, public, and property of others. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

SOURCE OF REFERENCED PUBLICATIONS**GENERAL**

1.1 STANDARD SPECIFICATIONS

Standard specifications of the following authorities referenced herein may be obtained from the addresses listed below:

NAME	ABBREVIATION
American National Standards Institute 11 West 42nd St New York, NY 10036	ANSI
American Society Of Mechanical Engineers Three Park Avenue New York, NY 10016-5990	ASME
American Society For Testing And Materials 100 Barr Harbor Drive West Conshohocken, PA 19428-2959	ASTM
Association Of Edison Illuminating Companies 600 No. 18th St. P.O. Box 2641 Birmingham, AL 35291-0992	AEIC
American Welding Society 550 N.W. LeJeune Road Miami, FL 33126	AWS
Code Of Federal Regulations Order from: Government Printing Office Washington, DC 20402	CFR
Defense Federal Acquisition Regulations Order from: Government Printing Office Washington, DC 20402	DFAR
Environmental Protection Agency Order from: Superintendent of Documents Government Printing Office Washington, DC 20402	EPA
Federal Acquisition Regulations Order from: Government Printing Office Washington, DC 20402	FAR

Institute Of Electrical And Electronics Engineers
445 Hoes Ln, P. O. Box 1331
Piscataway, NJ 08855-1331

IEEE

International Electrical Testing Association
P. O. Box 687
Morrison, CO 80465

NETA

FEDERAL HIGHWAY ADMINISTRATION
Office of Highway Safety (HHS-31)
400 Seventh St, SW
Washington, DC 20590-0001

FHWA

Order from:
Government Printing Office
Superintendent of Documents
Washington, DC 20402

Military Specifications
Order from:
Standardization Documents Order Desk
Building 4, Section D
700 Robbins Ave.
Philadelphia, PA 19111-5094

MS

National Electrical Manufacturers Association
1300 N. 17th St., Suite 1847
Rosslyn, VA 22209

NEMA

National Fire Protection Association
One Batterymarch Park P.O. Box 9101
Quincy, MA 02269-9101

NFPA

U.S. Army Corps of Engineers
Available from Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

USACE

MEASUREMENT AND PAYMENT**TABLE OF CONTENTS**

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MEASUREMENT AND PAYMENT**A. GENERAL INFORMATION**

In each instance the contract price shall for an item constitute full compensation as here in specified, as shown, or as otherwise approved. The contract price and payment will also constitute full compensation for all work incidental to completion of the item, unless such work is otherwise specifically mentioned for separate payment under another bid item or as stated in the description of the payment. In the event any work is required by specification sections or by the drawings and not specifically mentioned in the measurement and payment paragraphs, separate or direct payment will not be made and all costs thereof are incidental to and included in the contract price and payments for all items listed in the bid schedule.

B. MEASUREMENT

Items measured as a job will be measured for payment as a complete job in the locations indicated or specified. This measurement includes all incidental work and materials such as fittings, fasteners, electrical materials, and O & M manuals that is necessary to make a complete job. Unless the payment item paragraph makes a specific exception of any item, incidental items will not be measured under any other item even though there is another listing for the work or material.

C. PAYMENT**C.1 General**

Payment for all work specified, shown or incidental to complete the work will be made as follows:

Bid Item 0001 Remove and Dispose of the Existing Air Switches and Bus Support Insulators

Payment for Bid Item 0001 shall include all labor, material and equipment to remove and dispose of the existing air switches, bus support insulators, and all associated equipment and material including approximately 105 gallons of insulation oil. Disposal of all items shall be in conformance with the appropriate local, state and federal laws, codes, ordinances and regulations.

Bid Item 0002 Furnish and Install New Transformer Grounding Switches, 1200 Amp Type HSG

Payment for furnishing and installing four (4) new transformer grounding switches 1200, amp type HSG shall include the manufacturing, factory testing, delivering, and installing including all line connections additional auxiliary switches, modifications, adjustments, electrical tests and functional tests.

Bid Item 0003 Furnish and Install New Transformer Disconnect Switches, 1200 Amp Type MOD

Payment for furnishing and installing four (4) new transformer disconnect switches 1200, amp type MOD shall include the manufacturing, factory testing, delivering, and installing including all line connections additional auxiliary switches, modifications, adjustments, electrical tests and functional tests.

Bid Item 0004 Furnish and Install New Line Grounding Switches, 1600 Amp Type G

Payment for furnishing and installing two (2) new line grounding switches 1600, amp type G shall include the manufacturing, factory testing, delivering, and installing including all line connections additional auxiliary switches, modifications, adjustments, electrical tests and functional tests.

Bid Item 0005 Furnish and Install New Line Disconnect Switches, 1600 Amp Type MOD

Payment for furnishing and installing two (2) new line disconnect switches 1600, amp type MOD shall include the manufacturing, factory testing, delivering, and installing including all line connections additional auxiliary switches, modifications, adjustments, electrical tests and functional tests.

Bid Item 0006 Furnish and Install New Paralleling Bus Sectionalizer Switch, 1200 Amp Type HSG

Payment for furnishing and installing one (1) new transformer grounding switch 1200, amp type HSG shall include the manufacturing, factory testing, delivering, and installing including all line connections additional auxiliary switches, modifications, adjustments, electrical tests and functional tests.

Bid Item 0007 Furnish and Install New Bus Support Insulator Stacks

Payment for furnishing and installing 24 insulator stacks with buss and line connections and shall include the manufacturing, factory testing, delivering, and installation. Installation shall include all support and line connections.

Bid Item 0008 Furnish Spare Parts

Payment for furnishing spare parts shall include delivering, FOB Big Bend Project a complete set of spare parts as described in SECTION 16367.

PROMPT PAYMENT ACT

Pay requests authorized in CONTRACT CLAUSES clause: Prompt Payment Act. Contractor shall submit an original invoice and three copies (or electronic invoice, if authorized) to the address designated in the contract to receive invoices. The Government will make payment in accordance with the Prompt Payment Act (31 U.S.C. 3903) and OMB prompt payment regulations at 5 CFR Part 1315.

ENVIRONMENTAL PROTECTION

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ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 GENERAL

This section covers prevention of environmental pollution and damage as the result of construction operations under this contract and for those measures set forth in other Technical Provisions of these specifications. For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land resources; and includes management of visual aesthetics; noise; solid, chemical, and liquid waste; radiant energy and radioactive materials; as well as other pollutants.

1.2 QUALITY CONTROL

The Contractor shall establish and maintain quality control for environmental protection of all items set forth herein. The Contractor shall record on daily reports any problems in complying with laws, regulations and ordinances and corrective action taken. Copies of these records shall be furnished to the Government weekly.

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION H.

SD-08 Statement

Environmental Protection Plan; GA.

The Contractor shall submit an Environmental Protection Plan 180 calendar days after receipt of notice of contract award. The Contractor shall meet with the Contracting Officer to develop mutual understanding relative to compliance with this provision and administration of the environmental protection program. No physical work at the site shall begin until the Contracting Officer has approved the above plan(s) or provided specific authorization to start a phase of the work. Preparation and submittal of supplemental plans may be required if additional environmental protection planning is found necessary for later phases of work. Approval of the Contractor's plan will not relieve the Contractor of responsibility for complying with all applicable environmental laws or regulations, for performing adequate and continuing control of pollutants, and for taking other required environmental protection measures. The Government reserves the right to make changes in the above plans and operations as necessary to maintain satisfactory environmental protection performance. The Environmental Protection Plan shall include but not be limited to the following:

(1) Listing of Applicable Laws and Regulations. A list of Federal, State and local laws, regulations, and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations and permits. NOTE: The Contractor shall perform all work in compliance with the provisions of the Contract and applicable Federal, State, and local environmental laws and regulations. It is the Contractor's responsibility to obtain all necessary permits, licenses, and authorizations for a project.

(2) Omitted.

(3) Procedures. Procedures to be implemented to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident, natural causes or failure to follow the procedures set out in accordance with the environmental protection plan.

(4) Permit or license. Permit or license and location of the solid waste and/or hazardous waste disposal areas, and listing of other permits obtained by the Contractor to perform the specified work.

(5) Drawings. Drawings showing locations of any proposed temporary material storage areas, structures and sanitary facilities.

(6) Monitoring. Environmental monitoring plans for the job site, which incorporate land, water, air, and noise monitoring.

(7) Methods of Water Protection. Methods of protecting surface and ground water during construction activities. These waters shall be protected from pollutants such as petroleum products, fuels, oils, lubricants, bentonite, bitumens, calcium chloride, acids, waste washings, sewage, chlorinated solutions, herbicides, insecticides, lime, wet concrete, cement, silt, or organic or other deleterious material. Chemical emulsifiers, dispersants, coagulants, or other cleanup compounds shall not be used without prior written approval from the Contracting Officer. Waters used to wash equipment shall be disposed of in a manner to prevent their entry into a waterway prior to treatment to an acceptable quality. Fuels, oils, greases, bitumens, chemicals, and other non-biodegradable materials shall be contained with total containment systems and removed from the site.

(8) Noise Control. Noise control plan for the job site. The Contractor shall keep construction activities under surveillance and shall exercise all necessary controls to minimize damage to the environment by noise from equipment and various construction activities. All Contractor's, subcontractor's, and repetitious supplier's equipment used on or in the vicinity of the job site shall be equipped with the best generally available noise suppression devices. Equipment not so suppressed and properly maintained must be approved for use in writing by the Contracting Officer. Areas that have noise levels greater than 85 dB continuous or 140 dB peak (unweighted) impulse must be designated as noise hazardous areas. These work areas must have caution signs displayed at the perimeter of the noise area indicating the presence of hazardous noise levels and requiring the use of hearing protection devices.

(9) Work Area. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. The plan should include measures for marking the limits of use areas.

(10) Contaminant Prevention Statement. Prior to initiating any construction, the Contractor shall prepare a contaminant prevention statement which identifies all potentially hazardous substances on the job site and the intended actions to be taken to prevent the accidental or intentional introduction of such materials into the air, the water or the ground. The Contractor shall also detail special provisions taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials. The statement shall also include but not be limited to plans for preventing polluted runoff from plants, equipment parking, and maintenance areas from entering local surface and groundwater sources.

Contaminant Containment and Cleanup Plan; GA.

The Contractor shall prepare and submit a Contaminant Containment and Cleanup Plan in accordance with local, state and federal requirements

1.4 SUBCONTRACTORS

Compliance with the provisions of this section by subcontractors will be the responsibility of the Contractor.

1.5 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with Federal, State or local laws, regulations, permits and other elements. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action as may be approved. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping

all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it was later determined that the Contractor was in compliance.

PART 2 PRODUCTS

NOT APPLICABLE

PART 3 EXECUTION

3.1 PROTECTION OF ENVIRONMENTAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the drawings and specifications. Prior to starting the work under this contract, the Contractor shall perform and provide the Contracting Officer a pre-work survey, including photographs. If during the contract work activities the Contractor becomes aware of the presence of pre-project chemical hazard, all personnel are to leave the work area and the Contractor will immediately report the find to the Contracting Officer. Environmental protection and replacement shall be as stated in the following subparagraphs:

3.1.1 Disposal of solid wastes

Solid wastes includes any waste excavated or generated by the Contractor which meets the most complete definition of solid waste as described by Federal, State and local laws and regulations. Solid waste excluding hazardous wastes shall be placed in containers which are emptied on a regular schedule. All handling and disposal shall be conducted to prevent spillage and contamination. The Contractor shall participate in any State or local recycling programs and reduce the volume of solid waste materials at the source whenever practical.

3.1.1.1 Disposal of solid waste by removal from Government property

The Contractor shall transport all solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal.

3.1.2 Disposal of Discarded Materials

Discarded materials other than those which can be included in the solid waste category shall be handled as directed by the Contracting Officer.

3.1.3 Disposal of Hazardous Wastes

Hazardous waste shall be stored, removed from the work area and disposed of in accordance with Federal, State and local laws and regulations. Fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants, used solvents, waste oil, and other regulated wastes shall be stored in corrosion-resistant containers and disposed of in accordance with Section 02081 HAZARDOUS MATERIALS of this contract.

3.1.4 Protection of Water Resources

The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters. Discharges of any pollutant into the adjacent watercourses is strictly prohibited, except as otherwise specified or allowed in other sections of the Technical Specifications. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities which are included in this contract.

3.1.5 Protection of Air Resources

The Contractor shall keep construction activities under surveillance, management and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the State of Arkansas air quality standards, and all Federal, State and local emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency shall be maintained for those construction operations and activities specified in this section. Dust particles from all construction activities shall be controlled at all times.

3.1.5.1 Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

3.1.5.2 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

3.1.5.3 Monitoring

Monitoring of air quality shall be the responsibility of the Contractor. All air areas affected by the construction activities shall be monitored by the Contractor.

3.1.6 Burning

Material may not be burned within the contract area at any time within the contract period.

3.1.7 Inspection

When the Contracting Officer notifies the Contractor in writing of any observed noncompliance with Federal, State, or local laws, regulation, or permits, the Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

3.1.8 Government Performed Environmental Assessment

The Contract specifications have been prepared to comply with the special conditions and mitigation measures addressed in the Environmental Assessment (EA), Environmental Impact Statement (EIS), or other National Environmental Policy Act (NEPA) document for this work. The Contractor is advised that deviations from the drawings, specifications (e.g., disposal areas, staging areas, alternate access routes, etc.) could result in the requirement for the Government to prepare an additional or amended EA pursuant to NEPA. An EA requires a minimum of 90 days for review, processing, and approval time by the Government. Before the Government will commence the environmental assessment, the Contractor must submit all required information necessary to evaluate the alternate proposal as a single and complete package. The Contracting Officer reserves the right to disapprove the alternate proposal if located in woodlands, wetlands or other sensitive areas.

3.2 CLEANUP OF CONTAMINANT RELEASES

The Contractor shall provide the Contracting Officer a containment and cleanup plan 30 days after contract award including the procedures, instructions, and reports to be used in the event of an unforeseen oil or hazardous substance release. This plan shall include as a minimum:

(a) The name of the individual who will be responsible for implementing and supervising the containment and cleanup.

(b) A list of materials and equipment to be immediately available. Materials and equipment for other cleanup work shall be tailored to the potential hazards involved.

(c) The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material placement equipment available in case of an unforeseen spill emergency.

(d) The methods and procedures to be used for expeditious cleanup.

(e) The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual must immediately notify the Contracting Officer, in addition to the legally required reporting channels, when a reportable quantity spill of oil or hazardous substance occurs.

3.3 POST-CONSTRUCTION CLEAN-UP

The Contractor shall clean up areas used for construction and remove all signs of temporary construction facilities (i.e., work areas, structures, foundations of structures, stockpiles of excess or waste materials); Contractor office, storage and staging areas; and any other vestiges of construction within the project area shall be removed.

3.4 MAINTENANCE OF POLLUTION CONTROL FACILITIES

During the life of this contract, the Contractor shall maintain all facilities constructed for pollution control and all portable pollution control devices used under this contract for as long as the operations creating the particular pollutant are being carried out or until the material concerned has been stabilized to the extent that pollution is no longer being created.

3.5 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL

Early in the construction period, the Contractor shall conduct a training course for employees and subcontractors that will emphasize environmental protection. Personnel are to be informed of provisions to be taken for hazardous and toxic material container labeling and for managing Material Safety Data Sheets (MSDS). Anticipated hazardous or toxic chemicals shall also be reviewed.

3.6 ENVIRONMENTAL LITIGATION

3.6.1 Suspension, Delay or Interruption of Work

If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer shall determine whether the order is due in any part to acts or omissions of the Contractor, or subcontractor at any tier, not required by the terms of the contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor, or a Subcontractor at any tier, other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the Contract Clause "SUSPENSION OF WORK" of this contract. The period of such suspension, delay, or interruption shall be considered reasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

3.6.2 Definition

The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment.

ASBESTOS ABATEMENT WORK

PART 1 GENERAL

- 1.1 GENERAL INFORMATION
- 1.2 REFERENCES
- 1.3 PERMITS AND NOTIFICATIONS

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

- 3.1 ABATEMENT WORK DESCRIPTION
 - 3.2 WASTE SHIPMENT RECORD
 - 3.3 ASBESTOS CONTROL PROGRAM
-

ASBESTOS ABATEMENT WORK**PART 1 GENERAL****1.1 GENERAL INFORMATION**

This section covers the removal and disposal of all asbestos-containing materials encountered during the execution of this contract. During the performance of the contract, the laws, ordinances, rules, and regulations of Federal, State, Regional, and local authorities shall be complied with regarding the removal, storage, transportation, and disposal of asbestos-containing materials. Where the requirements of these specifications and Federal, State, Regional or local regulations vary, the most stringent requirements shall be enforced.

1.2 REFERENCES

The publications listed below form a part of this specification as they apply to the requirements for asbestos abatement work. If referenced in this specification, the publications will be referred by basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

CFR 29 Part 1926	Safety and Health Regulations for Construction
CFR 40 Part 61	National Emissions Standards for Hazardous Air Pollutants
CFR 49 Part 171	Hazardous Substances
CFR 49 Part 172	Subparts B and C, Hazardous Materials Tables and Hazardous Materials Communications Regulations
CFR 49 Part 173	Subpart M, Shippers – General Requirements for Shipments and Packaging

1.3 PERMITS AND NOTIFICATIONS

All permits relating to the asbestos removal, storage, hauling, and disposition, as required to perform the work described herein shall be the Contractor's responsibility. Timely notification of such actions as may be required by Federal, State, regional, and local agencies is the sole responsibility of the Contractor, including notification of the State's Environmental Protection Agency and the Contracting Officer in writing at least 10 working days prior to the commencement of work in accordance with 40 CFR 61.145 (b) and 40 CFR 2H.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION**3.1 ABATEMENT WORK DESCRIPTION****3.1.1 Asbestos Containing Material**

The Contractor is advised that existing control wiring insulation has been tested and has been found to be 30% Chrysotile [asbestos]. The Occupational Safety and Health Administration (OSHA) regulations (Title 29 Code of Federal Regulations (CFR) 1926.58) regarding asbestos do not apply to this work since this work fits the OSHA definition of a small-scale, short-duration operation. If proper care is taken against breaking or damaging the control

wiring insulation this work will not involve any exposure to airborne asbestos fibers. If the control wiring insulation becomes damaged during this operation, the requirements of 29 CFR 1926.58 shall apply, including monitoring, use of respirators, and worker training.

3.1.1.1 Control Wiring

The control wiring shall be disposed of as an asbestos-containing material, in accordance with the following Department of Transportation (DOT) Standards:

49 CFR Part 171, Hazardous Substances

49 CFR Part 172, Subparts B and C, Hazardous Materials Tables and Hazardous Materials Communications Regulations

49 CFR Part 173, Subpart M, Shippers – General Requirements for Shipments and Packaging

The control wiring shall be placed in sealed, leak-tight containers (e.g., double 6-mil plastic bags, sealed 6-mil double wrapped polyethylene sheet, sealed fiberboard boxes) or other approved containers. Waste within the containers must be wetted in case the container is breached. Labels shall be printed in large bold letters on a contrasting background and contain the following message:

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

3.2 WASTE SHIPMENT RECORD (WSR)

Final completed certified copies of the Waste Shipment Record for all shipments of waste material as specified CFR 40 Part 61, subpart M and other state waste manifest shipment records shall be signed and dated by the agent of the landfill.

3.3 ASBESTOS CONTROL PROGRAM

3.3.1 South Dakota

South Dakota Department of Water and Natural Resources has developed an Asbestos Control Program, Administrative Rules of South Dakota 74:31, which are in effect. These rules require certification of asbestos contractors and certification from the Department for approved training courses. The Department may be contacted at:

South Dakota Dept of Water & Natural Resources
Foss Building
523 East Capital
Pierre, SD 57501
Attn: Tammy LeBeau (605)773-3151

3.3.2 EPA Region

EPA Region VIII Office has jurisdiction over South Dakota and may be contacted at:

EPA Region VIII Office

999 18th Street Denver Place, Suite 500
Denver, CO 80202-2405
Attn: Regional Asbestos Coordinator (303)293-1730

METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS

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- 1.3 SUBMITTALS
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PART 2 PRODUCTS

- 2.1 FABRICATION
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PART 3 EXECUTION

- 3.1 INSTALLATION
- 3.2 PROTECTION OF FINISHED WORK
- 3.3 TESTS

METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS**PART 1 GENERAL****1.1 GENERAL INFORMATION**

This section covers operations in connection with metalwork fabrication, machine work and miscellaneous provisions.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B4.1	(1967; R 1999) Preferred Limits and Fits for Cylindrical Parts
ASME B46.1	(1995) Surface Texture (Surface Roughness, Waviness, and Lay
ASME BPVC IX	(1998) Boiler and Pressure Vessel Code; Section IX, Welding and Brazing Qualifications

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 36	(2000) Carbon Structural Steel
ASTM A 123	(1997; R 1999) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM E 165	(1995) Liquid Penetrant Examination Inspection Method
ASTM A 325	(1997) Structural Bolts, Steel, Heat Treated, 120/105 ks Minimum Tensile Strength
ASTM E 709	(1995) Magnetic Particle Examination

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1	(2000) Structural Welding Code - Steel
AWS D1.2	(1997) Structural Welding Code - Aluminum

MILITARY SPECIFICATIONS (MS)

MS MIL-P-21035	(Rev B) Paint, High Zinc Dust Content, Galvanizing Repair (Metric)
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1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION H.

Detail Drawings; GA

Detail drawings for metalwork and machine work shall be submitted and approved prior to fabrication.

SD-08 Statements

Welding Procedures for Structural Steel; GA

Schedules of welding procedures for steel structures shall be submitted and approved prior to commencing fabrication.

Structural Steel Welding Repairs; GA

Welding repair plans for steel shall be submitted and approved prior to making repairs.

SD-09 Reports

Tests, Inspections, and Verifications; FIO

Certified test reports for materials shall be submitted with all materials delivered to the site.

SD-13 Certificates

Qualification of Welders and Welding Operators; FIO

Certifications for welders and welding operators shall be submitted prior to commencing fabrication.

Materials Disposition Records; FIO

Materials disposition records shall be submitted before completion of contract.

1.4 METALWORK AND MACHINE WORK DETAIL DRAWINGS

Detail drawings for metalwork and machine work shall include catalog cuts, templates, fabrication and assembly details and type, grade and class of material as appropriate. Elements of fabricated items inadvertently omitted on contract drawings shall be detailed by the fabricator and indicated on the detail drawings.

1.5 QUALIFICATION OF WELDERS AND WELDING OPERATORS

The Contractor shall certify that the welders, welding operators and tack welders who will perform structural steel welding have been qualified for the particular type of work to be done in accordance with the requirements of AWS D1.1, or ASME BPV IX, Section IX, prior to commencing fabrication. The certificate shall list the qualified welders by name and shall specify the code and procedures under which qualified and the date of qualification. Prior qualification will be accepted if welders have performed satisfactory work under the code for which qualified within the preceding three months. The Contractor shall require welders to repeat the qualifying tests when their work indicates a reasonable doubt as to proficiency. Those passing the requalification tests will be recertified. Those not passing will be disqualified until passing. All expenses in connection with qualification and requalification shall be borne by the Contractor.

PART 2 PRODUCTS

2.1 FABRICATION

2.1.1 Structural Fabrication

Material must be straight before being laid off or worked. If straightening is necessary it shall be done by methods that will not impair the metal. Sharp kinks or bends shall be cause for rejection of the material. Material with welds

will not be accepted except where welding is definitely specified, indicated on the drawings or otherwise approved. Bends shall be made by approved dies, press brakes or bending rolls. Where heating is required, precautions shall be taken to avoid overheating the metal and it shall be allowed to cool in a manner that will not impair the original properties of the metal. Proposed flame cutting of material other than structural steel shall be subject to approval and shall be indicated on detail drawings. Shearing shall be accurate and all portions of the work shall be neatly finished. Corners shall be square and true unless otherwise shown on the drawings. Re-entrant cuts shall be filleted to a minimum radius of 3/4 inch unless otherwise approved. Finished members shall be free of twists, bends and open joints. Bolts, nuts and screws shall be tight.

2.1.1.1 Dimensional Tolerances for Structural Work

Dimensions shall be measured by an approved calibrated steel tape of approximately the same temperature as the material being measured. The overall dimensions of an assembled structural unit shall be within the tolerances indicated on the drawings or as specified in the particular section of these specifications for the item of work. Where tolerances are not specified in other sections of these specifications or shown on the drawings, an allowable variation of 1/32 inch is permissible in the overall length of component members with both ends milled and component members without milled ends shall not deviate from the dimensions shown on the drawings by more than 1/16 inch for members 30 feet or less in length and by more than 1/8 inch for members over 30 feet in length.

2.1.1.2 Structural Steel Fabrication

Structural steel may be cut by mechanically guided or hand-guided torches, provided an accurate profile with a surface that is smooth and free from cracks and notches is obtained. Surfaces and edges to be welded shall be prepared in accordance with AWS D1.1, Subsection 3.2. Where structural steel is not to be welded, chipping or grinding will not be required except as necessary to remove slag and sharp edges of mechanically guided or hand-guided cuts not exposed to view. Hand-guided cuts which are to be exposed or visible shall be chipped, ground or machined to sound metal.

2.1.2 Welding

2.1.2.1 Welding of Structural Steel

a. Welding Procedures for Structural Steel

Welding procedures for structural steel shall be prequalified as described in AWS D1.1, Subsection 4.1 or shall be qualified by tests as prescribed in AWS D1.1, Section 4. Properly documented evidence of compliance with all requirements of these specifications for previous qualification tests shall establish a welding procedure as prequalified. For welding procedures qualified by tests, the test welding and specimen testing must be witnessed and the test report document signed by the Contracting Officer. Approval of any welding procedure will not relieve the Contractor of the responsibility for producing a finished structure meeting all requirements of these specifications. The Contractor will be directed or authorized to make any changes in previously approved welding procedures that are deemed necessary or desirable by the Contractor Officer. The Contractor shall submit a complete schedule of welding procedures for each steel structure to be welded. The schedule shall conform to the requirements specified in the provisions AWS D1.1. The schedule shall provide detailed procedure specifications and tables or diagrams showing the procedures to be used for each required joint. Welding procedures must include filler metal, preheat, interpass temperature and stress-relief heat treatment requirements. Each welding procedure shall be clearly identified as being prequalified or required to be qualified by tests. Welding procedures must show types and locations of welds designated on the drawings or in the specifications to receive nondestructive examination.

b. Welding Process

Welding of structural steel shall be by an electric arc welding process using a method which excludes the atmosphere from the molten metal and shall conform to the applicable provisions of AWS D1.1, Sections 1 through 8. Welding shall be such as to minimize residual stresses, distortion and shrinkage.

c. Welding Technique

(1) Filler Metal

The electrode, electrode-flux combination and grade of weld metal shall conform to the appropriate AWS specification for the base metal and welding process being used or shall be as shown on the drawings where a specific choice of AWS specification allowables is required. The AWS designation of the electrodes to be used shall be included in the schedule of welding procedures. Only low hydrogen electrodes shall be used for manual shielded metal-arc welding regardless of the thickness of the steel. A controlled temperature storage oven shall be used at the job site as prescribed by AWS D1.1, Subsection 5.3 to maintain low moisture of low hydrogen electrodes.

(2) Preheat and Interpass Temperature

Preheating shall be performed as required by AWS D1.1, Subsection 3.5 or as otherwise specified except that the temperature of the base metal shall be at least 20 degrees C (70 degrees F). The weldments to be preheated shall be slowly and uniformly heated by approved means to the prescribed temperature, held at that temperature until the welding is completed and then permitted to cool slowly in still air.

d. Workmanship

Workmanship for welding shall be in accordance with AWS D1.1, and other applicable requirements of these specifications.

(1) Preparation of Base Metal

Prior to welding the Contractor shall inspect surfaces to be welded to assure compliance with AWS D1.1.

(2) Temporary Welds

Temporary welds required for fabrication and erection shall be made under the controlled conditions prescribed herein for permanent work. Temporary welds shall be made using low-hydrogen welding electrodes and by welders qualified for permanent work as specified in these specifications. Preheating for temporary welds shall be as required by AWS D1.1 for permanent welds except that the minimum temperature shall be 120 degrees F in any case. In making temporary welds arcs shall not be struck in other than weld locations. Each temporary weld shall be removed and ground flush with adjacent surfaces after serving its purpose.

(3) Tack Welds

Tacks welds that are to be incorporated into the permanent work shall be subject to the same quality requirements as the permanent welds and shall be cleaned and thoroughly fused with permanent welds. Preheating shall be performed as specified above for temporary welds. Multiple-pass tack welds shall have cascaded ends. Defective tack welds shall be removed before permanent welding.

2.1.3 Bolted Connections

2.1.3.1 Bolted Structural Steel Connections

Bolts, nuts and washers shall be of the type specified or indicated on the drawings. All nuts shall be equipped with washers except for high strength bolts. Beveled washers shall be used where bearing faces have a slope of more than 1:20 with respect to a plane normal to the bolt axis. Where the use of high strength bolts is specified or indicated on the drawings the materials, workmanship and installation shall conform to the applicable provisions of ASTM A 325.

a. Bolt Holes - Bolt holes shall be accurately located, smooth, perpendicular to the member and cylindrical.

(1) Holes for regular bolts shall be drilled or subdrilled and reamed in the shop and shall not be more than 1/16 inch larger than the diameter of the bolt.

(2) Holes for fitted bolts shall be match-reamed or drilled in the shop. Burrs resulting from reaming shall be removed. The threads of bolts shall be entirely outside of the holes. The body diameter of bolts shall have tolerances as recommended by ASME B4.1 for the class of fit specified. Fitted bolts shall be fitted in reamed holes by selective assembly to provide an LN-2 fit.

(3) Holes for high strength bolts shall have diameters of not more than 1/16 inch larger than bolt diameters. If the thickness of the material is not greater than the diameter of the bolts the holes may be punched. If the thickness of the material is greater than the diameter of the bolts the holes may be drilled full size or subpunched or subdrilled at least 3 mm(1/8 inch) smaller than the diameter of the bolts and then reamed to full size. Poor matching of holes will be cause for rejection. Drifting occurring during assembly shall not distort the metal or enlarge the holes. Reaming to a larger diameter of the next standard size bolt will be allowed for slight mismatching.

2.1.4 Machine Work

Tolerances, allowances and gauges for metal fits between plain, non- threaded, cylindrical parts shall conform to ASME B4.1 for the class of fit shown or required unless otherwise shown on approved detail drawings. Where fits are not shown they shall be suitable as approved by the Contracting Officer. Tolerances for machine-finished surfaces designated by non-decimal dimensions shall be within 1/64 inch. Sufficient machining stock shall be allowed on placing pads to ensure true surfaces of solid material. Finished contact or bearing surfaces shall be true and exact to secure full contact. Journal surfaces shall be polished and all surfaces shall be finished with sufficient smoothness and accuracy to ensure proper operation when assembled. Parts entering any machine shall be accurately machined and all like parts shall be interchangeable except that parts assembled together for drilling or reaming of holes or machining will not be required to be interchangeable with like parts. All drilled holes bolts shall be accurately located.

2.1.4.1 Finished Surfaces

Surface finishes indicated on the drawings or specified herein shall be in accordance with ASME B46.1. Values of required roughness heights are arithmetical average deviations expressed in microinches. These values are maximum. Lesser degrees will be satisfactory unless otherwise indicated on the drawings. Compliance with surface requirements shall be determined by sense of feel and visual inspection of the work compared to Roughness Comparison Specimens in accordance with the provisions of ASME B46.1. Values of roughness width and waviness height shall be consistent with the general type of finish specified by roughness height. Where the finish is not indicated or specified it shall be that which is most suitable for the particular surface, provide the class of fit required and be indicated on the detail drawings by a symbol which conforms to ASME B46.1 when machine finishing is provided. Flaws such as scratches, ridges, holes, peaks, cracks or checks which will make the part unsuitable for the intended use will be cause for rejection.

2.1.4.2 Unfinished Surfaces

All work shall be laid out to secure proper matching of adjoining unfinished surfaces unless otherwise directed. Where there is a large discrepancy between adjoining unfinished surfaces they shall be chipped and ground smooth or machined to secure proper alignment. Unfinished surfaces shall be true to the lines and dimensions shown on the drawings and shall be chipped or ground free of all projections and rough spots. Depressions or holes not affecting the strength or usefulness of the parts shall be filled in by an approved manner.

2.1.4.3 Pin Holes

Pin holes shall be bored true to gauges, smooth, straight and at right angles to the axis of the member. The boring shall be done after the member is securely fastened in position.

2.1.5 Miscellaneous Provisions

2.1.5.1 Metallic Coatings

a. Zinc Coatings - Zinc coatings shall be applied in a manner and of a thickness and quality conforming to ASTM A 123. Where zinc coatings are destroyed by cutting, welding or other causes the affected areas shall be regalvanized. Coatings 2 ounces or heavier shall be regalvanized with a suitable low-melting zinc base alloy similar to the recommendations of the American Hot-Dip Galvanizers Association to the thickness and quality specified for the original zinc coating. Coatings less than 2 ounces shall be regalvanized by a repair compound conforming to MS MIL-P-21035.

2.1.6 Shop Assembly

Each machinery and structural unit furnished shall be assembled in the shop to determine the correctness of the fabrication and matching of the component parts unless otherwise specified. Tolerances shall not exceed those shown on the drawings. Each unit assembled shall be closely checked to ensure that all necessary clearances have been provided and that binding does not occur in any moving part. Assembly in the shop shall be in the same position as final installation in the field unless otherwise specified. Assembly and disassembly work shall be performed in the presence of the Contracting Officer unless waived in writing. Errors or defects disclosed shall be immediately remedied by the Contractor without cost to the Government. Before disassembly for shipment each piece of a machinery or structural unit shall be match-marked to facilitate erection in the field. The location of match-marks shall be indicated by circling with a ring of white paint after the shop coat of paint has been applied or as otherwise directed.

2.2 TESTS, INSPECTIONS, AND VERIFICATIONS

The Contractor shall have required material tests and analyses performed and certified by an approved laboratory to demonstrate that materials are in conformity with the specifications. These tests and analyses shall be performed and certified at the Contractor's expense. Tests shall conform to the requirements of the particular sections of these specifications for the respective items of work unless otherwise specified or authorized. Tests shall be conducted in the presence of the Contracting Officer if so required. The Contractor shall furnish specimens and samples for additional independent tests and analyses upon request by the Contracting Officer. Specimens and samples shall be properly labeled and prepared for shipment.

2.2.1 Nondestructive Testing

When doubt exists as to the soundness of any material part, such part may be subjected to any form of nondestructive testing determined by the Contracting Officer. This may include ultrasonic, magnaflux, dye penetrant, x-ray, gamma ray or any other test that will thoroughly investigate the part in question. The cost of such investigation will be borne by the Government. Any defects will be cause for rejection and rejected parts shall be replaced and retested at the Contractor's expense.

2.2.2 Tests of Machinery and Structural Units

The details for testing various machinery and structural units shall conform to the requirements of the particular sections of these specifications covering these items. Each complete machinery and structural unit shall be assembled and tested in the shop in the presence of the Contracting Officer unless otherwise directed by the Contracting Officer. Waiving of tests will not relieve the Contractor of responsibility for any fault in operation, workmanship or material that occurs before the completion of the contract or guarantee. After being installed at the site each complete machinery or structural unit shall be operated through a sufficient number of complete cycles to demonstrate to the satisfaction of the Contracting Officer that it meets the specified operational requirements in all respects.

2.2.3 Inspection of Structural Steel Welding

The Contractor shall maintain an approved inspection system and perform required inspections in accordance with paragraph CONTRACTOR INSPECTION SYSTEM of the CONTRACT CLAUSES of this contract. Welding shall be subject to inspection by the Contracting Officer to determine conformance with the requirements of AWS D1.1, the approved welding procedures and provisions stated in other sections of these specifications. The Contracting Officer may require nondestructive examination of designated welds and may require supplemental examination of any joint or coupon cut from any location in any joint.

2.2.3.1 Visual Examination

All completed welds shall be cleaned and carefully examined for insufficient throat or leg sizes, cracks, undercutting, overlap, excessive convexity or reinforcement and other surface defects to ensure compliance with the requirements of AWS D1.1.

2.2.3.2 Nondestructive Examination

The nondestructive examination of shop and field welds shall be performed as designated on the drawings or described in the sections of these specifications covering the particular items of work.

a. Testing Agency - The nondestructive examination of welds and the evaluation of examination tests as to the acceptability of the welds shall be performed by a testing agency adequately equipped and competent to perform such services or by the Contractor using suitable equipment and qualified personnel. In either case the Contracting Officer's written approval of the examination procedures is required and the examination tests shall be made in the presence of the Contracting Officer. The evaluation of examination tests shall be subject to the approval of the Contracting Officer and all records shall become the property of the Government.

b. Examination Procedures

(1) Ultrasonic Testing

Making, evaluating and reporting ultrasonic testing of welds shall conform to the requirements of AWS D1.1. The ultrasonic equipment shall be capable of making a permanent record of the test indications. A record shall be made of each weld tested.

(2) Magnetic Particle Inspection

Magnetic particle inspection of welds shall conform to the applicable provisions of ASTM E 709.

(3) Dye Penetrant Inspection

Dye penetrant inspection of welds shall conform to the applicable provisions of ASTM E 165.

c. Acceptability of Welds - Welds shall be unacceptable if shown to have defects prohibited by AWS D1.1, Subsection 9.25 or possess any degree of incomplete fusion, inadequate penetration or undercutting.

d. Welds to be Subject to Nondestructive Examination

Spot nondestructive examination of welds shall be used to ensure adequate welding quality and water tightness of seams, and as a minimum the following amount of non-destructive inspection shall be performed:

- (1) Ten percent of the full penetration welds shall be inspected by ultrasonic testing.
- (2) Ten percent of the groove welds shall be inspected by ultrasonic testing.
- (3) Ten percent of the fillet welds shall be inspected by magnetic testing or liquid penetrant testing.

- (4) The samples shall be randomly selected and shall be representative of the welds on that weldment.

2.2.3.3 Test Coupons

The Government reserves the right to require the Contractor to remove coupons from completed work when doubt as to soundness cannot be resolved by nondestructive examination. Should tests of any two coupons cut from the work of any welder show strengths less than that specified for the base metal it will be considered evidence of negligence or incompetence and such welder shall be removed from the work. When coupons are removed from any part of a structure the members cut shall be repaired in a neat manner with joints of the proper type to develop the full strength of the members. Repaired joints shall be peened as approved or directed to relieve residual stress. The expense for removing and testing coupons, repairing cut members and the nondestructive examination of repairs shall be borne by the Government or the Contractor in accordance with the paragraph INSPECTION AND ACCEPTANCE of the CONTRACT CLAUSES of this contract.

2.2.3.4 Supplemental Examination

When the soundness of any weld is suspected of being deficient due to faulty welding or stresses that might occur during shipment or erection the Government reserves the right to perform supplemental nondestructive examinations before final acceptance. The cost of such inspection will be borne by the Government.

2.2.4 Structural Steel Welding Repairs

Defective welds shall be repaired in accordance with AWS D1.1. Defective weld metal shall be removed to sound metal by use of air carbon-arc or oxygen gouging. Oxygen gouging shall not be used on ASTM A 514 steel. The surfaces shall be thoroughly cleaned before welding. Welds that have been repaired shall be retested by the same methods used in the original inspection. Except for the repair of members cut to remove test coupons and found to have acceptable welds costs of repairs and retesting shall be borne by the Contractor.

PART 3 EXECUTION

3.1 INSTALLATION

All parts to be installed shall be thoroughly cleaned. Packing compounds, rust, dirt, grit and other foreign matter shall be removed. Holes and grooves for lubrication shall be cleaned. Enclosed chambers or passages shall be examined to make sure that they are free from damaging materials. Where units or items are shipped as assemblies they will be inspected by the Contracting Officer prior to installation. Disassembly, cleaning and lubrication will not be required except where necessary to place the assembly in a clean and properly lubricated condition. Pipe wrenches, cold chisels or other tools likely to cause damage to the surfaces of rods, nuts or other parts shall not be used for assembling and tightening parts. Bolts and screws shall be tightened firmly and uniformly but care shall be taken not to overstress the threads. When a half nut is used for locking a full nut the half nut shall be placed first and followed by the full nut. Threads of all bolts except high strength bolts, nuts and screws shall be lubricated with an approved lubricant before assembly. Threads of corrosion-resisting steel bolts and nuts shall be coated with an approved antigalling compound. Driving and drifting bolts or keys will not be permitted.

3.2 PROTECTION OF FINISHED WORK

Machined surfaces shall be thoroughly cleaned of foreign matter. All finished surfaces shall be protected. Unassembled pins and bolts shall be oiled and wrapped with moisture resistant paper or protected by other approved means. Finished surfaces of ferrous metals to be in bolted contact shall be washed with an approved rust inhibitor and coated with an approved rust resisting compound for temporary protection during fabrication, shipping and storage periods. Finished surfaces of metals which shall be exposed after installation except corrosion resisting steel or nonferrous metals shall be painted.

3.3 TESTS

Production welding shall conform to the requirements of AWS D1.1 or AWS D1.2 as applicable. Studs on which pre-production testing is to be performed shall be welded in the same general position as required on production items (flat, vertical, overhead or sloping). Test and production stud welding will be subjected to visual examination or inspection. If the reduction of the length of studs becomes less than normal as they are welded, welding shall be stopped immediately and not resumed until the cause has been corrected.

HIGH VOLTAGE AIR SWITCH REPLACEMENT

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HIGH VOLTAGE AIR SWITCH REPLACEMENT

PART 1 GENERAL

1.1 SITE CONDITIONS

Big Bend Powerhouse is at 1420 feet, MSL. The ambient temperature ranges between -40°C and +40°C.

1.2 DESCRIPTION OF WORK

The work includes replacement of three pole, 240 kV, high voltage air switches, operators, and bus support insulators. The work site is the draft tube deck of the Big Bend Powerhouse. The switches and insulators are mounted on four, 33 foot high brackets and on three 60 foot high steel towers founded on the draft tube deck.

1.2.1 Demolition

Demolition work includes removal of the following, which become the property of the Contractor:

- a. Seven 240 kV motor operated switches.
- b. Four electric release, manual reset, high-speed grounding switches.
- c. Two manually operated grounding switches.
- d. Twenty-one oil interrupters, part of a. Each interrupter contains approximately five (5) gallons of insulating oil. Contractor is responsible for testing the oil for contaminants and for disposing of the oil in conformance with all applicable law, codes, ordinances and regulations.
- e. Switch actuators, operators, linkage and auxiliary switches.
- f. Low voltage power and control cables back to first termination. **Note:** The low voltage power and control cables are run through conduit embedded in concrete and have been in place for over 35 years. The Contractor can expect difficulty in removing these cables and shall carefully execute their removal to avoid breaking the cables in the conduit without removing.
- g. Five spare switch interrupters not oil filled and miscellaneous repair parts.
- h. Twenty four insulator stacks (five units each) Ohio Brass - Technical Reference No. TR175.

1.2.2 Supply and Install.

- a. Replace the following switches with new switches as specified herein:

Switch No.	Application	Rating, Amp.	Type
1080	Transformer #1 Grounding	1200	HSG
1081	Transformer #1 Disconnect	1200	MOD
1083	Ford Thompson Line #1	1600	MOD
1090	Line #1 Grounding	1600	G
2080	Transformer #2 Grounding	1200	HSG
2081	Transformer #2 Disconnect	1200	MOD
3080	Transformer #3 Grounding	1200	HSG
3081	Transformer #3 Disconnect	1200	MOD

4080	Transformer #4 Grounding	1200	HSG
4081	Transformer #4 Disconnect	1200	MOD
4083	Ford Thompson Line #2	1600	MOD
4090	Line #2 Grounding	1600	G
7089	Paralleling Bus Sectionalizer	1200	MOD

G Manually operated grounding switch

HSG Electric release, manual open, fault-initiating grounding switch

MOD Motor operated disconnect switch

b. The contractor shall replace 24 bus support insulator stacks (5 insulators per stack, Ohio Brass - Technical Reference No. TR175).

1.2.3 Design

Provide design and drafting services incidental to the switch replacement work. Requirements for these services are described in PART 3. Drawings to be produced include, but are not limited to the following:

- a. Record sketches of existing wiring and terminals.
- b. Sizing of cables and conductors, includes verifying raceway fill.
- c. New control schematics.
- d. New interconnection diagrams.
- e. Revisions to all plant operational drawings affected by the work.
- f. Structural steel details for adapting new switches to existing supporting structure. These include redesign to suit new switches, of anchorage points on the base of switches 1083, 4083 and 7089 for main paralleling bus strain insulators.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- | | |
|-------------|---|
| ANSI C29.1 | (1988; R 1996) Electrical Power Insulators - Test Methods |
| ANSI C29.9 | (1983; R 1996) Wet-Process Porcelain Insulators -Apparatus, Post Type |
| ANSI C37.32 | (1990; R 1996) High-Voltage Air Switches, Bus Supports and Switch Accessories - Schedules of Preferred Ratings, Manufacturing Specifications, and Application Guide |
| ANSI C80.1 | (1994) Rigid Steel Conduit-Zinc Coated |

AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)

- | | |
|-----------------|--|
| ASTM A36 Rev A | (1997; R 1999) Structural Steel |
| ASTM A123 Rev A | (1997; R 1998) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products |

ASTM A153	(1998) Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 500	(1999) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A 501	(1999) Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
ASTM B98	(1998) Copper-Silicon Alloy Rod, Bar, and Shapes
ASTM B188	(1996) Seamless Copper Bus Pipe and Tube
ASTM B221	(1996) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B1.1	(1989) Unified Inch Screw Threads (UN and UNR Thread Form)
ASME B1.20.1	(1983; R 1992) Pipe Threads, General Purpose (Inch)

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

IEEE C2	(1997) National Electrical Safety Code
IEEE C37.30	(1997) Definitions and Requirements for High-Voltage Air Switches, Insulators, and Bus Supports
IEEE C37.34	(1994) Standard Test Code for High-Voltage Air Switches

INTERNATIONAL ELECTRICAL TESTING ASSOCIATION INC. (NETA)

NETA ATS	(1999) Acceptance Testing Specifications
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NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION PUBLICATIONS (NEMA)

NEMA FB 1	(1993) Fittings, Cast Metal boxes, and Conduit Bodies for Conduit and Cable Assemblies
NEMA ICS 1	(1993) Industrial Control and Systems
NEMA ICS 2	(1993) Industrial Control and Systems Controllers, Contactors, and Overload Relays Rated Not More Than 2,000 Volts AC or 750 Volts DC
NEMA MG 1	(1998; R 1999) Motors and Generators
NEMA WC 7	(1988; R 1996) Cross-Linked-Thermosetting- Polyethylene- Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy
NEMA WC 8	(1988; R 1996) Ethylene-Propylene-Rubber- Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1999) National Electrical Code
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1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation. Submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION H.

SD-01 Data

Equipment; GA

Within 30 calendar days after date of receipt of notice of award, Three (3) copies of manufacturer's data, drawings, catalog cuts, and wiring diagrams of all parts of the equipment. The information shall include, as a minimum, operating handles and locks, details of jaw and hinge contacts, bearings, operating rod guide bearings, methods of joining operating rod members, spring or motor operating mechanisms, auxiliary switches, and mechanical interlocks. Submittals shall include schematic and connection diagrams of the motor operating mechanism. Data shall be in sufficient detail to demonstrate that all moving parts of hinge connection are adequately protected from the weather and that no springs are part of the current carrying path. As a minimum, submittals shall be provided for the following components:

- a. Disconnect Switch
- b. Vacuum Interrupter
- c. Grounding Switch
- d. Switch Operators and Controls
- e. Switch Linkages and Connectors
- f. Switch Insulators
- g. Auxiliary Switches
- h. Auxiliary Relays
- i. Tubular Bus
- j. Bus Fittings and Connectors
- k. Nameplates
- l. Bus Support Insulator Stacks

SD-04 Drawings

Disconnect Switch, Grounding Switch, Operators and Linkages; GA

Within 30 calendar days after date of receipt of notice of award, three (3) copies of outline drawings of all equipment to be furnished, together with weights, detail dimensions and complete mounting details. Drawings are primarily for design of the installation and shall be furnished with the following information:

- a. Outline drawings showing:
 - (1) Mounting dimensions.

- (2) Location and dimensional data of terminals.
 - (3) Dimensional data pertaining to the arc of travel of disconnect and grounding switch blades.
 - (4) Plan and elevation for travel of energized parts during operation so clearances to walls, ground, etc., may be verified.
 - (5) Open-gap (metal-to-metal) distance.
 - (6) Total net weight of each single pole assembly less motor operator and less insulators and less vacuum interrupter. .
 - (7) Total assembled weight of each complete single pole assembly, including insulators and vacuum interrupter.
 - (8) Total projected surface area of each complete single pole assembly.
 - (9) Net weight of motor operator.
 - (10) Mounting details for the auxiliary switches.
- b. Outline drawings of the switch arrangement for each pole showing installation dimensions, including the operating mechanism.
 - c. A detailed wiring diagram showing both the internal and external connections, and a complete three-pole schematic diagram shall be furnished for the motor-operator control scheme and auxiliaries.

Operational Drawing; GA

Prior to final acceptance of the work, submit three (3) copies of the following operational drawings, prepared on Bentley Microstation, version 95. Drawings shall be accompanied by CD diskette(s) of the drawing files.

- a. Switch operator schematic diagrams.
- b. Switch operator wiring diagrams.
- c. Interconnection diagrams including:
 - (1) Switch operators
 - (2) Auxiliary switches
 - (3) Interlocks
 - (4) Existing switchboards
- d. Control switchboard wiring diagrams.
- e. Revised cable and conduit schedules.
- f. Revised conduit and grounding plans.

SD-06 Instructions

Operation and Maintenance Manuals; GA

Two weeks prior to delivery of switches: three (3) copies of the manufacturer's standard operation and maintenance manuals for disconnect switch, grounding switch, switch operators. Manuals shall contain the following information for the switch, motor and spring operators, and any accessory equipment included therewith:

- a. Complete instructions covering the operation, adjustment and maintenance of the equipment. Cuts or drawings shall be provided showing all points where adjustments may be made.
- b. Drawings which identify all spare parts by either part number or item and drawing number.
- c. Information and drawings on insulators provided with the switches.
- d. A detailed wiring diagram showing both the internal and external connections, and a complete three-pole schematic diagram shall be furnished for the motor-operator control scheme and auxiliaries.

SD-07 Schedules

Factory Tests; FIO

Four weeks prior to start of routine factory tests; submit a factory test schedule.

Construction Outages; GA

Within 30 days after date of receipt of notice of award, submit on schedule of outages required as specified in paragraph 3.1.3.

Accessories and Spare Parts Lists; GA

List shall be itemized and include the following data for each item:

- a. Quantity.
- b. Manufacturer.
- c. Part Number.
- d. Nomenclature or Description.
- e. Unit Price.

SD-09 Reports

Disconnect Switch and Grounding Switch Design Test Reports; FIO

Within 30 calendar days after date of receipt of notice of award, three (3) certified copies of design test reports for tests specified. If the Contractor performs design tests specifically for equipment furnished under this contract, he shall submit three (3) certified copies of those design test reports within 30 days after approval of data package.

Disconnect Switch and Grounding Switch Production Test Reports; FIO

Within 14 days after completion of tests, three (3) certified copies production test reports for equipment specified.

Insulator Production Test Reports; FIO

Tests shall be made at the place of manufacture and three (3) copies of certified test reports shall be furnished within 14 days after completion of tests. Witnessing of factory tests will not be required.

Vacuum Interrupter Test Reports; FIO

Tests shall be existing design tests or shall be made by the manufacture. Three (3) copies of certified test reports shall be furnished within 14 days after completion of tests. Witnessing of factory tests will not be required.

1.5 QUALIFICATIONS

Each manufacturer shall have a minimum two (2) years experience with the production of equipment of the same type and rating. If the Contractor desires to deviate from the standards specified, he shall after award submit a statement of the exact nature of the deviation, and shall submit for the approval of the Contracting Officer complete specifications covering the materials and equipment proposed for use.

PART 2 PRODUCTS

2.1 OUTDOOR AIR DISCONNECT AND GROUNDING SWITCHES

2.1.1 General

The equipment to be furnished under this section consists of group-operated-air disconnect switches and grounding switches for the 240 kV transformer and transmission line circuits. The disconnect switches shall be complete with terminal connectors; manual, spring, and motor operating mechanisms; linkages; hardware; accessories; and necessary mounting devices, all as specified herein. The disconnect switches shall be 3-pole, group-operated, outdoor, horizontal-mounted, vertical-break, three-insulator type. The operating linkage shall be Contractor-designed, in coordination with the switch manufacturer for the existing structure. The grounding switches shall be high-speed, solenoid-latch released, spring-operated type with manual reset, 3-pole, outdoor, units as shown on the drawings. The vertical motion of the switch blades shall be accomplished through the rotation of one insulator stack per pole in each switch about its own vertical axis. The switches shall be designed for mounting on the existing structures requiring none but minor modifications or additions to the structure.

2.1.2 Operating Conditions

The switches shall operate satisfactorily in both directions in an 80 miles per hour wind or with 3/4 of an inch accumulation of ice on any or all parts of the mechanism or contacts.

2.1.3 Support Structure

Switches shall be mounted on existing structures. All fasteners shall be NC or UNC series in accordance with ASME B1.1. Pipe fittings and threads shall be in accordance with ASME B1.20.1.

2.1.4 Hardware

Fasteners and pins used in the assembly of non-ferrous parts shall be either silicon bronze conforming to ASTM B98, alloy B; or nonmagnetic stainless steel.

Other corrosion-resistant metals may be substituted, with prior approval of the Contracting Officer.

Energized parts shall be free from points or sharp edges or shall be adequately shielded against corona discharge.

2.1.5 Galvanizing

Galvanizing shall be in accordance with ASTM A123 or A153 as applicable. The zinc-iron alloy formed at the interface shall not exceed 70% of the thickness of the zinc layer.

2.1.6 Rating

The ratings of the switches shall be as indicated below and shall conform to the requirements of ANSI C29.9, C37.32 and IEEE C37.30.

a. Rated Maximum Voltage, kV rms	242	
b. Basic Impulse Insulation Level, kV Crest	900	
c. Continuous Current Rating, Amperes, rms in PART 1	as described	
d. Momentary Asymmetrical Current Rating, kA, rms	ANSI C37.32	
e. Three second current rating	ANSI C37.32	Table 1
f. Grounding switch making current, kA, rms	61	
g. Electric release grounding switch operating time, maximum, sec	0.5	

2.1.7 Switch Bases

Bases shall be fabricated from structural steel conforming to the requirements of ASTM A36. Each single-pole switch element shall be assembled on an individual base. The base shall be designed as a rectangular or square enclosed tube in cross section to prevent excessive torsional deflection during high wind loading. The tubes may be structural tubes conforming to ASTM A500 or A501 and The Manual of Steel Construction Allowable Stress Design, Ninth Ed. Of AISC or may be fabricated from steel plates and shapes and shall conform to the provisions of SECTION 05101 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS. The bases shall be constructed so that the deflection under maximum operating force with maximum wind loading will not interfere with the successful operation of the switch. Bases shall be hot dip galvanized after fabrication. Field damage to galvanizing shall be repaired in accordance with SECTION 05101.

2.1.8 Switch Blades

Blades shall be of tubular construction designed to withstand operation under the weather and ice conditions specified and to provide maximum strength with minimum weight. They shall be sufficiently rigid to prevent whip or vibration and of a design that will tend to minimize an accumulation of ice, or foreign matter. The blades shall automatically lock when in the closed position to prevent opening due to vibration or electromagnetic forces. Blades shall be counter-balanced for ease of operation and smooth control.

2.1.9 Switch Contacts

All live switch contacts shall be of the high-pressure type. In opening, contact pressure shall be released prior to vertical motion of the blade, and in closing, pressure shall be applied after vertical motion has ceased. Contacts shall be self-cleaning and designed so that the wiping action will not cause scarring or abrasion of the contact surfaces. For contact surfaces of silver, the silver shall be at least 10 mils thick. Fixed guides shall be provided for proper seating of contacts with a blade out of line one-inch in any direction.

2.1.10 Hinge Connections

The current-carrying path through the hinge mechanism of the switches shall be by means of movable pressure type contacts of proven design. The entire hinge mechanism of the switch shall be designed and constructed to prevent nesting of birds or insects from interference with proper operation of the switch.

2.1.11 Terminals

Switch terminal pads shall be of high-strength aluminum alloy or high-copper alloy with silver-plated contact surfaces. Terminal connectors of high-copper alloy shall be provided at each end of each switch. The contact surfaces of the terminal connectors connecting to the terminal pads of the switches shall be silver-plated. The terminal pads shall be NEMA six hole type per ANSI C37.32 Figure 1 (c) able to accommodate NEMA two or four hole connections. Terminal loading shall meet the requirements of ANSI C37.32 Table 2.

2.1.12 Switch Bearings

Bearings shall be of ample size to sustain the imposed loads and of a type to ensure continued ease of operation and long life. Bearings provided at the base of the rotating insulator column shall be of the ball or roller type and shall be adequately protected from the weather to prevent the entrance of dirt or moisture and resulting corrosion. All bearings shall maintain proper alignment, ensure continued ease of operation, and ensure against corrosion and seizing under conditions specified. Gears shall be enclosed in weatherproof cases designed to retain the necessary lubricant. All line and transformers switches shall have bearings at the base of each rotating insulator stack and, if necessary, additional bearings at the top of the stack.

2.1.13 Actuator Shafts

Vertical shafts or pipes connecting the switch operator to the switch pole shall be provided with intermediate bearings spaced to prevent displacement or binding of the connecting shaft. Bearings shall be of a design that avoids relative motion between the surface of the shaft or pipe proper and the stationary part of the bearing. Thrust bearings shall be provided to permit ready operation of the switch actuator decoupling mechanism.

2.1.14 Vacuum Interrupter

Line and transformer switches shall include a vacuum interrupter on each switch pole. The interrupter shall be capable of breaking the currents listed below, prior to the release of the interrupter actuating lever by the switch blade pickup arm. The emergency listing below represents out-of-sequence switch operation, but does not include load-break operation.

	Emergency	Normal
Line charging current, amp	11	5.5
Transformer excitation current, amp	17	4.2

Interrupters with multiple series units shall employ a means of equalizing the voltage across each unit.

2.1.15 Switch Position Indicator

A mechanical device to indicate the “OPEN” or “CLOSED” position of the switch blades shall be located approximately at eye level.

2.1.16 Padlocking Provision

Provide a means for padlocking each operating mechanism in either the open or closed position.

2.1.17 Switch Operator Isolation

A positive means shall be provided for decoupling the switch operator from the vertical operating shaft. This means shall include a visible gap, located approximately at eye level, between the vertical operating shaft and the switch

operator. This isolation shall be effective with the switch either open or closed and shall be capable of being padlocked in the disengaged position. Re-engagement shall be possible only with the switch operator in the same relative operating position as the switch blades.

Provide a flexible braid copper grounding conductor, with a cross-section area equal to 4/0, across the isolation mechanism.

2.1.18 Interphase Linkage

Linkage shall be continuous lengths between switch poles. Forces shall be transmitted independent from pipe threads. Line and bus tie switches 1083, 4083 and 7089 shall be provided with push-pull type linkage to balance the lateral forces imposed on the switch poles and minimize deflections imparted to the switch base.

2.1.19 Interlocking

Interlocking shall be provided as specified below and shown on the contract drawings. The grounding switch operating mechanism shall be electrically interlocked with the disconnect switch mechanism to prevent the closing of the disconnect switch when the grounding switch is in the closed position. The Contractor shall provide required auxiliary switches.

2.1.20 Manual Operators

The geared type manual operators shall drive a worm or bevel gear operated with a crank. The motion of the handle shall be clockwise to close and counterclockwise to open the switch. All gears and worms shall be lubricated and completely enclosed in gear cases. The nondetachable crank shall be not more than 15 inches nor less than 12 inches in length. A rain tight shield shall be provided where the vertical shaft extends through the gear case. All gear-operating mechanisms shall be enclosed in weather proof cases made of corrosion-resistant metal, or metal hot-dip galvanized in accordance with ASTM A153. All cases shall be designed to retain the necessary lubrication, shall be fitted with a drain hole and captive plug in the bottom, and shall be provided with pressure fittings if parts require periodic grease lubrication.

2.1.21 Motor Operator

The motor operated mechanism shall be reversing type with provision for manual operation in an emergency by means of a hand crank. Provisions shall be made for automatically disconnect the electrical control circuit when the crank is inserted for manual operation. A suitable hanger with fastening devices shall be provided to hold the crank when not in use. The motor shall conform to applicable requirements of NEMA MG 1 and controls shall comply with NEMA ICS 2. The gear train shall be designed for quiet operation and shall be totally enclosed. Reversing contactors shall be mechanically interlocked. Contactors shall be NEMA Size 1 or larger with operating coils suitable for continuous operation at rated voltage. A mechanical brake with electric release or other positive means to stop the operation of the disconnect and to hold it in the open or closed position shall also be included. The operator mechanism assembly shall include an operation counter.

a. D.C. Motor

The motors shall be of ball bearing type suitable for operation on 125-volt direct current and shall operate the switch satisfactorily at 5 percent overvoltage and 25 percent undervoltage for closing and opening. The motor shall be protected with overloads, sized as required. Motor shall have molded case circuit breaker with magnetic trip unit for use as a disconnect means within the enclosure.

b. Motor Operator Control

The local motor operator control shall be a two-button, momentary contact, "OPEN-CLOSE" push-button station or a switchboard type control switch, accessible only when the housing door is open. The controls shall also include indicator lights visible when the housing door is closed and an emergency stop button. The controls shall be a heavy-duty type rated 600-volts ac, 250-volts dc, 20 amperes continuous, with single-break inductive load

interrupting rating of not less than 1.5 amperes for 125-volts dc. Controls shall include a knife switch for visibly disconnecting the control voltage power supply. The motor operator shall include provisions for remote operation from the control room with existing "OPEN-CLOSE" handle and indicating lights. Motor operator shall include a "LOCAL-REMOTE" switch transferring control to the existing remote operating station at the control room.

c. Motor Limit Switches

Motor limit switches shall be heavy-duty snap-action type and shall have sufficient contacts to provide the specified control functions. "Open" and "closed" shall accurately indicate the point during the main switch operating cycle when each blade reaches the end of its stroke and has successfully attained its fully open or fully closed limit position. The limit switches shall positively hold their adjustment setting under all ambient operating conditions, in severe dust locations, and over indefinite periods of time to assure maximum integrity of position indication. Each limit switch shall be easily adjustable and easily accessible. Each limit switch shall be electrically independent.

d. Motor Operator Housing

Motor operator housing shall be deadfront with means for locking with a padlock when closed. The housing shall be drilled and tapped for the entrance of conduits. The housing shall include a 120-volt, single-phase, ac heating unit of approximately 100 watts capacity, with an automatic thermostat control and a molded case circuit breaker or switch to disconnect the heating unit from the source of power. Doors shall provide easy access to all parts. Suitable screened louvers with dust filters shall be provided for ventilation, and a drain with dust filter shall be provided to prevent accumulation of moisture at the bottom of the housing.

e. Terminal Blocks

Sufficient terminal blocks shall be provided in the motor operator for connection of the external wiring including all auxiliary switches and a minimum of ten percent spare terminals, but in no case shall fewer than four spare terminals shall remain after completed installation. They shall be of molded or fabricated type with barriers, rated not less than 600-volts, 30 Amp. The terminals shall be removable, binding, fillister, or washer-head screw type terminals, or stud-type with contact and locking nuts. They shall be not less than No. 10 in size suitable for connecting at least two No. 10 AWG conductors, with indented terminal connectors, to one terminal. Wiring shall be complete between all equipment within the housing and the terminal blocks. Terminal block marking strips shall be provided, suitably marked with wire designations. These markings shall be added to the Contractor's shop drawings. External cable designations will also be furnished to the Contractor for adding to the shop drawings.

f. Wiring

Insulated wire shall have minimum rated circuit voltage of 600 volts in accordance with Table 3-1 of NEMA WC 7 or NEMA WC 8. All wires shall be single-conductor, of stranded, annealed copper. Conductors shall be Class B or Class C stranding, except for hinge wire which shall be Class H or Class K stranding. Conductor size shall be not less than No. 14 AWG. Insulation shall be cross-linked thermosetting polyethylene (XLPE) type, meeting the requirements of Section 3 or paragraph 7.7 of NEMA WC 7 as applicable, or an ethylene-propylene rubber (EPR) type meeting the requirements of Part 3 of NEMA WC 8. All connections to device terminals studs or blocks shall be made with ring tongue terminals. Ring tongue wiring external to the switch operators shall be in galvanized rigid steel conduit as specified in SECTION 16050. The completed installation shall conform to the requirements of the National Electrical Code, NFPA 70.

g. Wire Markings

All control conductors shall be identified with nonmetallic tube-type markers at each termination. Markers shall be suitable for the type of wire insulation. Tubing shall be sized to fit the wire being marked and shall have black marking on a light colored background. Installed markers shall be uniform in position on the wire and legends shall be visible when wires are terminated on blocks or at equipment. Written certification from an approved independent testing laboratory shall be furnished to indicate that the markers will not stain or discolor after 20 years' service when subjected to an accelerated aging test while in contact with wire insulating materials. Identification on markers shall be as shown on the shop drawings or as directed.

2.1.22 Grounding Switch Actuator

The transformer grounding switch shall be operated by energy stored in a spring mechanism and released by a 125 VDC solenoid. The solenoid shall operate over the range of voltages specified in ANSI C37.32, Table 16, for tripping function. Operating time to close shall be 0.5 seconds or less. The switches shall be opened and the spring mechanism recharged by a manual rotary crank actuator.

2.1.23 Switch and Bus Support Insulators

The equipment consists of post type insulators, and mounting bases conforming to the requirements of ANSI C29.9, and as shown on the drawings. The bus support insulator stacks (5 insulators per stack) are Ohio Brass - Technical Reference No. TR175). New insulators shall be chosen to meet or exceed the design of the existing insulators, 900kV BIL, 1450lb. cantilever strength. The height of the bus support insulators shall be coordinated to provide a level horizontal bus from the insulators to the new switch.

a. Porcelain and Glazing

The porcelain shells shall be clean, dense, homogeneous and nonporous, and shall be fired to a complete and uniform vitrification, free from internal stresses, cracks, blisters, laminations, voids, foreign matter, flaws, or other defects. The surfaces, except those roughened for cement grips, shall be smooth and shall be free from undue warping. The glaze shall be smooth, hard, dense, continuous, and brilliant. Surfaces of the porcelain shell subjected to mechanical stresses transmitted from the metal parts shall be sanded. The particles forming this sanded surface shall be of the size best adapted to the particular dimension and size of insulator and shall form a uniform single layer, smoothly distributed and firmly vitrified to the porcelain during the firing process. No excess or loose particles shall be present after firing. The sanded zones shall be of uniform width and accurately located so as to properly distribute the mechanical loading, and shall be completely covered by metal parts. The caps and bases of the insulators shall be free from cracks, shrinks, air holes, burrs, or rough edges.

b. Metal Parts

The metal parts shall be so designed as to transmit the mechanical stresses uniformly to the porcelain. The contours of the metal and porcelain parts shall minimize areas or points of high dielectric flux concentration. All surfaces shall be smooth with no projecting points or irregularities that may cause corona.

2.1.24 Auxiliary Switches

Auxiliary switches shall be provided for functions as shown on the drawings. Contacts shall be rated 125 volts dc, and not less than 15 amperes continuous. All auxiliary switches shall be adjustable for timing with the switch blades and shall be complete with all connecting links and fittings. Failure of any switch pole to complete its operation shall not result in a false indication through the auxiliary switch. Terminal blocks shall be provided in the auxiliary switches for external wire connections. Auxiliary switches shall be directly connected to linkage and keyed to prevent slippage. Provide two spare "a" contacts and two spare "b" contacts on each switch.

2.1.25 Key Interlocks

Key interlocks for line switches and line grounding switches shall be Kirk Key Interlock Company Scheme No. 4. Keys shall duplicate existing. Provide auxiliary switches as shown on the Drawings.

2.1.26 Switch Tools And Accessories

The Contractor shall furnish one complete set of all special tools, wrenches, and other appurtenant equipment that may be necessary or convenient for assembling, aligning or disassembling the switches.

2.1.27 Line Switches

Line switches include switch numbers 1083 and 4083. They shall be provided with the following as specified in paragraph 2.1.1.

- a. Motor operators.
- b. Auxiliary switches.
- c. Key interlocks.
- d. Vacuum interrupters.

2.1.28 Bus tie switch 7089 shall be provided with the following as specified in paragraph 2.1.1.

- a. Motor operators.
- b. Auxiliary switches.
- c. Vacuum interrupters.

2.1.29 Transformer switches include switch numbers 1081, 2081, 3081 and 4081. They shall be provided with the following as specified in paragraph 2.1.1.

- a. Motor operators.
- b. Auxiliary switches.
- c. Vacuum interrupters.

2.1.30 Line Grounding Switches

Line grounding switches include switch numbers 1090 and 4090. They shall be provided with the following as specified in paragraph 2.1.1.

- a. Manual operators.
- b. Auxiliary switches.
- c. Key interlocks.

2.1.31 Transformer Grounding Switches

Transformer grounding switches are fault-initiating, high speed grounding type. They include switch numbers 1080, 2080, 3080 and 4080. They shall be provided with the following as specified in paragraph 2.1.1.

- a. Spring actuators with solenoid release.
- b. Manual operators for switch opening.
- c. Auxiliary switches.

2.1.32 Spare Parts

All spare parts shall be of the same material, and manufacture as the original parts, and they shall be interchangeable therewith. Parts shall be in clearly identified individual packages suitable for long term storage. The following spare parts shall be furnished:

- a. Three (3) complete assemblies of stationary and moving shoes, or tip assemblies, for main contacts of one pole of each rating of the disconnect switch.
- b. Three (3) complete assemblies of stationary and moving shoes, or tip assemblies, for one pole of one grounding switch of each rating.
- c. One (1) complete set of auxiliary contacts and springs for the disconnect and grounding switches.
- d. Three (3) switch insulator units of each size and rating.
- e. One (1) motor of each rating for the motor-operating mechanism.
- f. One (1) motor reversing contactor of each rating.
- g. One (1) set of limit switches of each rating.
- h. One (1) coil for electric brake release.
- i. One (1) solenoid coil for solenoid release unit.
- j. One (1) complete set of auxiliary contacts and contact springs for solenoid release unit.
- k. One (1) motor contactor.
- l. One (1) vacuum interrupter.
- m. One (1) bus support insulator stack

2.2 INSTALLATION MATERIALS

2.2.1 Anchor Bolts

Contractor shall furnish and install concrete expansion anchors, size and quantity as required. The anchors shall be made of high tensile and shear strength steel, with one-piece stainless steel expander mounted on parabolic wedge. Anchor shall be double plated. Plating shall be zinc with chromate dip conforming to Federal Specifications QQ-Z-325. Pull out values shall meet or exceed those listed under GSA FF-S-325.

2.2.2 Insulated Wire and Cable

2.2.2.1 All wire and cable used for power, control, indication, and relaying systems shall be provided by the Contractor and shall conform to the requirements specified herein. Characteristics, including conductor size, stranding, number of conductors, rated circuit voltage, cabling, and other requirements for each type of service, shall be as indicated on the drawings, or as specified under the detailed requirements of these specifications for the particular construction or use, unless otherwise stated. Complete descriptive specifications, test reports and drawings shall be submitted for approval for all items furnished.

2.2.2.2 Governing Standards

Materials, construction and tests, unless otherwise specified, shall conform to the applicable requirements of NEMA WC 7 and NEMA WC 8.

2.2.2.3 Rated Circuit Voltages

Wire and cable for circuits operating at 600 volts and below shall have minimum rated circuit voltages in accordance with Table 3-1 of NEMA WC 7 or WC 8.

2.2.2.4 Conductors

a. Material

Conductors shall conform to all the applicable requirements of Section 2 of NEMA WC 7 or Part 2 of WC 8 as applicable, and shall be annealed copper. Copper conductors may be bare, or tin- or lead-alloy coated, if required by the type of insulation used.

b. Size

Minimum wire size shall be No. 12 AWG or No. 19/25 for power and lighting circuits; No. 10 AWG or No. 19/22 strand current transformer secondary circuits; No. 14 AWG for potential transformer, relaying and control circuits.

c. Stranding

Conductor stranding classes cited herein shall be as defined in Appendix L of NEMA WC 7 or WC 8, as applicable. Any conductors used between stationary and moving devices, such as hinged doors or panels, shall be Class H or K stranding. All other conductors shall have class B or C stranding, except that conductors shown on the drawings, or in the schedule, as No. 12 AWG may be 19 strands of No. 25 AWG, and conductors shown as No. 10 AWG may be 19 strands of No. 22 WG.

2.2.2.5 Insulation

a. Insulation Material

Insulation shall be cross-linked thermosetting polyethylene (XLPE) type, meeting the requirements of Section 3 or paragraph 7.7 of NEMA WC 7 as applicable, or an ethylene-propylene rubber (EPR) type meeting the requirements of Part 3 of NEMA WC 8.

(1) The insulation material and its manufacturing, handling, extrusion and vulcanizing processes, shall all be subject to strict procedures to prevent the inclusion of voids, contamination, or other irregularities on or in the insulation. Insulation material shall be inspected for voids and contaminants. Inspection methods, and maximum allowable void and contaminant content shall be in accordance with Section B of AEIC CS5 or AEIC CS6, as applicable.

(2) Cables with repaired insulation defects discovered during factory testing, or with splices or insulation joints, are not acceptable.

b. Insulation Thickness

The insulation thickness for each conductor shall be based on its rated circuit voltage.

(1) Power Cables/Single-Conductor Control Cables, 2,000 Volts and Below.

The insulation thickness for single-conductor cables rated 2,000 volts and below shall be as required by Table 3-1, Section 3 of NEMA WC 7 or Table 3-1, Part 3, of NEMA WC 8, as applicable. Column "A" thickness of Table 3-1 of NEMA WC 7 will be permitted only for single-conductor cross-linked thermosetting polyethylene insulated cables without a jacket. NEMA WC 8 ethylene-propylene rubber-insulated conductors shall have a jacket. Column "B" thickness shall apply to single-conductor cables that require a jacket and to individual conductors of multiple-conductor cables with an overall jacket.

(2) Multiple-Conductor Control Cables

The insulation thickness of multiple-conductor cables used for control and related purposes shall be as required by Table 7-32 of NEMA WC 7 or Table 7.5.1 of NEMA WC 8 as applicable.

2.2.2.6 Jackets

All cables shall have jackets meeting the requirements of Section 4 of NEMA WC 7, or Part 4 of NEMA WC 8, as applicable, and as specified herein. Individual conductors of multiple-conductor cables shall be required to have jackets only if they are necessary for the conductor to meet other specifications herein. Jackets of single-conductor cables and of individual conductors of multiple-conductor cables, except for shielded cables, shall be in direct contact and adhere or be vulcanized to the conductor insulation. Multiple-conductor cables and shielded single-conductor cables shall be provided with a common jacket, which shall be tightly and concentrically formed around the core. Repaired jacket defects found and corrected during manufacturing are permitted if the cable, including the jacket, afterward fully meets these specifications and the requirements of the applicable standards.

a. Jacket Material

The jacket shall be one of the materials listed below, in accordance with the paragraphs cited in parentheses below, of NEMA WC 8. Polyvinyl chloride compounds will not be permitted. Variations from the materials required below will be permitted only if approved for each specific use, upon submittal of sufficient data to prove that they exceed all specified requirements for the particular application.

- (1) Heavy-duty black neoprene (4.4.3).
- (2) Heavy-duty chlorosulfonated polyethylene (4.4.10).
- (3) Heavy-duty cross-linked (thermoset) chlorinated polyethylene (4.4.11).
- (4) PVC jackets will not be accepted.

b. Jacket Thickness

The minimum thickness of the jackets at any point shall be not less than 80 percent of the respective nominal thickness specified below:

(1) Multiple-Conductor Cables. Thickness of the jackets of the individual conductors of multiple-conductor cables shall be as required by Section 4, Table 4-6 of NEMA WC 7 or Part 4, Table 4-4 of NEMA WC 8, and shall be in addition to the conductor insulation thickness required by Column B of Table 3-1 of the applicable NEMA publication for the insulation used. Thickness of the outer jackets or sheaths of the assembled multiple-conductor cables shall be as required by Section 4, Table 4-7, of NEMA WC 7 or Part 4, Table 4-5, of NEMA WC 8.

(2) Single-Conductor Cables. Single conductor cables, if nonshielded, shall have a jacket thickness as specified in Section 4, Table 4-4 of NEMA WC 7 or Part 4, Table 4-2 of NEMA WC 8. If shielded, the jacket thickness shall be in accordance with the requirements of Section 4, Table 4-5 of NEMA WC 7 or Part 4, Table 4-3 of NEMA WC 8.

2.2.2.7 Identification

a. Color Coding. Insulation of individual conductors of multiple conductor cables shall be color coded in accordance with paragraph 5.3 of NEMA WC 8, except that colored braids will not be permitted. Only one color-code method shall be used for each cable with Table K-2, Appendix K of NEMA WC 8. Power cable color-coding for 208Y/120 volt service shall be black for Phase A, red for Phase B, blue for Phase C, white for grounded neutral, and green for an insulated grounding conductor, if included. Power cable color-coding for 480 volt circuits shall be brown for Phase A, orange for Phase B, and yellow for Phase C.

b. Cable Tags. All multiple-conductor cables shall be clearly identified with the cable designation by either embossed one-inch diameter brass tags or by embossed aluminum band markers.

c. Wire Tube-Type Markers. Wires and individual conductors of control and power cables shall be identified with non-metallic tube-type markers at each termination. Tube-type markers shall be suitable for contact with tubber or neoprene or plastic. A written certificate from an approved independent testing laboratory shall be furnished to indicate that the markers will not stain or test while in contact with wire insulating materials.

2.2.2.8 Cabling

Individual conductors of multiple-conductor cables shall be assembled with flame and moisture-resistant fillers, binders, and a lay conforming to Part 5 of NEMA WC 8, except that flat twin cables will not be permitted. Fillers shall be used in the interstices of multiple conductor round cables with a common covering where necessary to give the completed cable a substantially circular cross section. Fillers shall be of a non-hygroscopic material, compatible with the cable insulation, jacket, and other components of the cable. The rubber of a cable and filled or other approved type of binding tape shall consist material that is compatible with the other components of the shall be lapped at least 10 percent of its width.

2.2.2.9 Dimensional Tolerance

The outside diameters of single-conductor cables and of multiple conductor cables shall not vary more than 5 percent and 10 percent, respectively, from the manufacturer's published catalog data.

2.2.2.10 Inspection and Tests

Inspection and tests of wire and cable furnished under these specifications shall be made by and at the plant of the manufacturer, and shall be witnessed by the GQAR, unless waived in writing. Five certified copies of the reports of all tests shall be furnished including all test data. Reports of all witnessed tests shall be signed by the witnessing Contractor Quality Control Representative and GQAR. The costs of performing all tests shall be borne by the Contractor and shall be included in the prices bid in the Schedule of Section B. The Government may perform further tests before or after installation. Testing in general shall comply with Section 6 of NEMA WC 7 or Part 6 of WC 8. Specific tests required for particular materials, components, and completed cables shall be as specified in the sections of the above standards applicable to those materials, components, and cable types. Tests shall also be performed in accordance with the additional requirements specified below.

a. High-Voltage Test Source. Where applicable standards allow a choice, high-voltage tests for cables to be used exclusively on dc circuits shall be made with dc test voltages. Cables to be used exclusively on ac circuits shall be tested with ac test voltages. if both ac and dc will be present, on either the same or separate conductors of the cable, ac test voltages shall be used.

b. Flame Tests. All multiple-conductor and single-conductor cable assemblies shall pass the IEEE 383 flame tests, paragraph 2.5, using the ribbon gas burner. Single-conductor cables and individual conductors of multiple-conductor cables shall pass the flame test of NEMA WC 7, paragraph 7.7.3.1.3. If such tests, however, have previously been made on identical cables, these tests need not be repeated. Instead, certified reports of the original qualifying tests shall be submitted.

c. Independent Tests. The Government may at any time make visual inspections, continuity or resistance checks, insulation resistance readings, power factor tests, or dc high-potential tests at field test values. A cable's failure to pass these tests and inspections, or failure to produce readings consistent with acceptable values for the application, will be grounds for rejection of the cable.

2.2.2.11 Packaging and Marking

The cables shall be furnished one length to a reel or coil. Each length, and the outside of each reel or coil, shall be plainly marked or tagged to indicate the cable length, voltage rating, conductor size, and manufacturer's lot number

and reel number. Cables for exclusively dc applications shall be identified as such. Reels shall remain the property of the Contractor.

2.2.2.12 Terminations

There shall be no splices in the wiring and all connections shall be made at terminal studs or terminal blocks with ring-tongue indented terminals, Burndy Type YAV or YA.E, T&B STA-KON, or approved equal. All screw terminals shall have toothed lockwashers and all stud terminals shall have contact nuts and either locking nuts or lockwashers.

2.2.3 Conduit and Fittings

Conduit shall be rigid steel conforming to ANSI C 80.1 and shall be zinc coated both inside and outside by the hot-dip method. Fittings for ridged metal conduit shall be galvanized malleable iron or cast aluminum conforming to the requirements of NEMA FB 1 and shall employ fasteners made from corrosion resisting material.

2.2.3.1 Conduit Sealing Bushings

Conduit sealing bushings used in core bit drilled concrete penetrations shall be OZ/Gedney Type CSM. Seals for abandoned conduits-shall be OZ/Gedney Type CSB.

2.2.4 Line Terminations

Transition plates for bolted connections between aluminum and copper-based alloy connectors shall be Anderson type TP, or approved equal. Joint compound for making up bolted aluminum conductor fittings shall be Anderson VERSA-SEAL #155, Alnox or approved equal.

PART 3 EXECUTION

3.1 EXISTING CONDITIONS

3.1.1 Draft Tube Deck

Contractor occupancy of draft tube deck shall permit unrestricted access by plant operating personnel. The Contractor shall cooperate with operating personnel in ensuring rapid access of crane or mobile equipment in an emergency. The gantry crane shall have access to any draft tube for stop log operations on four hours notice.

3.1.2 Power House Roof

Contractor shall have access to powerhouse roof. Mobile equipment is not permitted. Roof shall be protected in work areas with 2 courses of 3/4" plywood, half-lapped.

3.1.3 Scheduling

Contractor shall schedule his outages to minimize loss of production. His schedule shall be arranged to permit operation of half the units during most of the construction period, minimizing the total time requiring all units to be down.

3.2 CLEARANCE

Contractor shall receive clearance from both WAPA and Big Bend Power Plant prior to grounding either of the Fort Thompson lines. He shall receive clearance from Big Bend prior grounding a transformer bus. All grounding shall be installed and maintained by the Contractor, in conformance with all safety codes and requirements, independent from existing grounding switches.

3.3 FACTORY TESTS

3.3.1 Routine Test

Each item of equipment shall be given the manufacturer's routine factory tests and other tests specified below. The factory test equipment and the test methods used shall conform to the applicable requirements of ANSI Standards, IEEE Standards, and NEMA Publications and are subject to the approval of the Contracting Officer. All tests required will be witnessed by the Contracting Officer unless waived in writing, and no equipment shall be shipped until it has been approved for shipment by the Contracting Officer. The Contractor shall notify the Contracting Officer a minimum of 2 weeks in advance of the date of the tests so that arrangements can be made for the Contracting Officer's Representative to be present at the tests. The cost of performing all tests shall be borne by the Contractor.

3.3.2 Group-Operated Disconnect and Grounding Switch Design Tests

The Contractor shall perform all applicable design tests on one switch of each rating unless design tests specified by IEEE C37.34 have previously been made on switches of identical construction and of the same voltage, continuous current and momentary current ratings as those specified, in which case the Contractor may furnish certified copies of these design tests in lieu of making the tests. Tests made by the Contractor on the equipment to be furnished shall be made on one completely assembled pole of one of each rating of disconnect and grounding switch. Switch insulators required for making the tests shall be furnished by the Contractor. If any switch fails to pass all of the specified tests, then all switches of the same rating shall be tested. Any switch which fails to pass all of the specified tests will be rejected. Tests shall be performed in accordance with the applicable provisions of IEEE C37.34.

3.3.3 Group-Operated Switch Routine Production Tests

All tests will be witnessed by the Contracting Officer, unless waived in writing, and no equipment shall be shipped until it has been released for shipment by the Contracting Officer:

- a. Each single-pole of the disconnect switch shall be assembled without insulators, inspected and given the manufacturer's routine production and operating tests. Tests shall be performed with switch mounted in a position as shown on the drawings. Factory adjustment shall be so made that field changes will not be required on the switch beyond the point where interphase connections are attached to the rotating insulators.

- b. All parts shall be properly marked and identified for ease of field assembly.

- c. Dimensions in accordance with the applicable contract and manufacturer's drawings shall be verified.

3.3.4. Operating Mechanisms

The following tests shall be made on the motor operator to be furnished:

- a. Inspection and operation tests on each electrical operating mechanism. The completely assembled motor-operator shall be given electrical operational tests to verify electrical connections, operation free of misalignment or binding, and satisfactory overall assembly and performance.

- b. Dielectric test on each motor in accordance with NEMA MG 1.

- c. Dielectric test on the control equipment for each motor in accordance with NEMA ICS 1.

3.3.5 Insulators

The following tests shall be made on insulators of each specified rating unless design tests below have previously been made on insulators of identical construction and ratings as those specified, in which case the Contractor may furnish certified copies of these design tests in lieu of making the tests. All tests shall be performed in accordance with ANSI C29.1.

3.3.5.1 Design

The design tests for the post type insulators shall have been made in accordance with the requirements of ANSI C29.9.

3.3.5.2 Production

Post type insulators shall be given routine tests as specified in ANSI C29.9. Quality Conformance Tests described in ANSI C29.9 will be required for insulators furnished under the contract, unless waived in writing.

3.4 INSTALLATION

3.4.1 General

Installation shall be carried out by skilled mechanics following procedures specified by the switch manufacturer.

3.4.2 Line Connections

Make up connections between similar metals using joint compound specified in PART 2. Dissimilar metals requires a transition plate, also specified in PART 2.

3.4.3 Additional Auxiliary Switches

The number of control conductors shall be increased as required to terminate the spare auxiliary switch contacts from each switch operator at the appropriate Relay or Instrument Board.

3.5 ADJUSTING

Switch adjustment shall be carried out under the supervision of the switch manufacturers' technical representative.

3.6 ELECTRICAL TESTS

Inspect and test low voltage conductors per NETE-ATS paragraph 7.3.2. Lift terminals prior to conducting applied potential test.

3.7 FUNCTIONAL TESTS

After installation is complete, the operating mechanisms of the switches shall be tested for both manual and automatic opening and closing. The ground switch automatic trip will normally be initiated by a signal from either the transformer lockout relay, or transformer ground relay. Testing of the ground switch automatic trip, and subsequent automatic switch operation, shall be performed by actual operation of the transformer lockout relay.
